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AIR TRAILS published monthly by Street & Smith Publications, Inc., at 575 Madison Ave., New York 22, N. Y. Entered as second class matter at the post office at New York, N. Y. Authorized as second class mail. Post Office Dept., Ottawa, Canada. Copyright, 1951, by Street & Smith Publications, Inc. 25c per copy—$2.50 per year, $7.50 per year in countries of the Pan-American Union; $3.00 per year in Canada; $10.00 per year elsewhere. This issue is Vol. XXXVI, No. 3. Please advise us if you move; allow four weeks for change of address. Give old and new address when notifying us. Subscription correspondence should be addressed to Subscription Dept., Street & Smith Publications, Inc., 304 E. 45th St., New York 17, N. Y. All characters used in fiction and semi-fiction stories in this magazine are fictitious. We cannot accept responsibility for unsolicited manuscripts or art work. Any material submitted must include return postage. Printed in the U.S.A.


# THE READERS WRITE:

All Communications to the Air Trails editorial offices should be addressed to Air Trails, 304 E. 45th St., New York 17, N. Y.

**Half-A Battle Still Rages . . .** Mr. M. S. Wolf of Brookline, Mass., states that Half-A's are no ?&!%@! good for control-line planes. Will you please give me the address of the mental institution where he is staying? I am 16 years old and started modeling when about 6. My first motor was a Half-A. I have been flying controliners of various types for a year and a half and I'll say that Mr. Wolf can take his "clunkers." He'll end up with a broken finger yet. Your magazine is tops for a model mag.

*Eddie Brown, Athens, Ohio*

**More Half-A "Facts" . . .** I would like to state my opinion of Mr. M. S. Wolf's somewhat derogatory "facts" concerning Half-A engines and planes as outlined recently in this letter column.

Like Mr. Wolf, I have several larger motors, as well as a Half-A. I think Half-A motors are wonderful and they are well adapted to control-line flying. And for those who can't afford larger (and therefore more expensive engines and planes), as well as those who do not have space enough to fly them, the Half-A is a modeler's dream.

Your magazine has always had a wide enough variety of plans and interesting reading to please the majority of readers.

*Eugene Cunningham, Jackson, Mo.*

**Call from Cuba . . .** Please I want send me any information or address of any store what sale sailplane plans (no models of airplane), why I not know nothing store for the sales of plans. Miss Take for my bag english.

*Oscar Alonso Jr., Matanzas, Cuba*

• For information regarding plans for sailplanes, we suggest you write to the Soaring Society of America, P.O. Box 71, Elmira, N. Y.

**Goodyear for '51? . . .** Could you tell me the dates of the Goodyear Races for 1951?

*Wayne Kinder, Malden, Mo.*

• The Goodyear Co. no longer sponsors midget plane races—therefore this event is not scheduled for 1951. However, there will probably be several similar races this year, held throughout the country.

**Fuel for Overseas . . .** Thanks to your publishing my letter asking for help in obtaining dope and glow fuel here in Austria, I and my friends can now do a bit of flying. We are getting these items from an English model firm. Thanks again to AT and all the fellows who wrote me.

*Cpl. James M. Cobrando, U.S. Army*

**German Mystery Plane . . .** I have heard many *stories* about a strange World War II German reconnaissance plane. My friends tell me it was a completely off-center design. Would you please give me some *facts*? It was to have been made by Blohm and Voss.

*Tex DeWeese, Cincinnati, Ohio*

• The asymmetrical German plane referred to was known as the Blohm and Voss BV-141. The engine was located in the long narrow fuselage, while the crew rode in a nacelle located off-center of the wing. The plane had only half a stabilizer, mounted on left side of fuselage. It was powered by a B.M.W. radial engine of 1,500 hp.

**Calling DC-5 and Saturn . . .** What happened to those two small transports the Douglas DC-5 and the Lockheed Saturn?

*S. Kirk Smith, Watsonville, Calif.*

• A number of DC-5 airplanes were built in 1938 and used by the Dutch airline KLM in the Pacific. Also, the military version was used by the U. S. Marines. The Lockheed Saturn was discontinued.

**Submarine-based Planes . . .** Can a plane or planes take off from submarines, and if so, what kind and how many planes can be accommodated on a sub? This information is for the model club I belong to at high school.

*Fred Rakunas, Chicago, Ill.*

• Airplanes have taken off from submarines both here and abroad. For this purpose a light catapult is used. The Japanese, during World War II, had special carrier submarines with deck hangar housing up to three planes.

In this country such designers as Loening and Martin have designed and built planes capable of being carried on submarines.

**Rotary Engine Problems . . .** I have been an interested reader of Douglas Rolfe's Air Progress for some time. I have often read of planes powered by a radial rotary engine. To my knowledge a rotary engine is one in which the cylinders turn with the propeller. I would like to know if this is true, and if so wouldn't it create a large amount of torque?

I would also like to know how these engines were mounted.

*L. A. Roy, Alexandria, La.*

• Early airplanes used rotary engines and they did have a lot of torque. They were mounted on ring mounts and had a rather complicated system of fuel, oil supply as well as exhaust scavenging.

**Helicopter for Exploration . . .** As an assiduous reader of your magazine which I've been appreciating for a long time, I'll be very glad and grateful if you can give me some addresses of helicopter manufacturers.

I join to my letter a photograph from your magazine showing a helicopter which corresponds to a model I've been thinking about for exploration purposes.

*Sr. Mario Mocci, Ciudad-Bolivar, Venezuela, South America*

• Here are several of the most active organizations in the U.S.A. whose helicopters are on the market: Bell Aircraft Corp., Helicopter Div., Box. 1, Buffalo, N. Y.; Hiller Helicopter, 1350 Willow Rd., Palo Alto, Calif.; Sikorsky Aircraft, South Ave., Bridgeport 1, Conn.

The helicopter illustrated in the clipping sent us is a Sikorsky S-51 type.

**Turbo-jet for Modelplanes . . .** A little over a year ago I began designing a turbo-jet engine for modelplanes. The design and drawings for this engine are now completed. I am not financially or mechanically able to go ahead with the development of this engine into the test model stage. I am writing in the hope that possibly one of your many readers may have a solution to my problem.

The dimensions for the engine I have drawings for are as follows, although I might add it could be made smaller: overall length (including shaft for propeller), 7⅝"; overall diameter, 1¾"; approx. wt., 5 oz.; approx. retail price, $5-$10.

*Frank A. Zigman, 544 East 123rd St., Apt. 4, Cleveland 8, Ohio*

**Composite C-82? . . .** While thumbing through a recent issue of Air Trails I came across a picture of the Fairchild C-82 and either I haven't seen this modification or there has been some trick photography involved. It seems that this plane has a C-119 fuselage and C-82 booms and tail assembly. Also I noted the three-bladed propeller which is not used on a C-119.

Will you please correct me if I am wrong? My job is in relation with the maintenance of the C-82 and I've never seen anything like this. Inclosed is a snapshot I made of the C-82 and it sure doesn't compare with yours.

*PFC Philip J. Castain, Frankfurt, Germany*

C-119A above; Castain's C-82 below.

• The airplane depicted in our photo was actually a C-119 prototype, known as C-119A. Its similiarity to the C-82 confused us too. This particular Packet has the C-82 tail booms and three-bladed propellers; unlike the production C-119B it has a single wheel on each main undercarriage leg, instead of dual wheel landing gear of the later type.

(*Continued on page 9*)

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| Avro-Baby 22" | AA | 2.98 |
| Baby Ace 18" | AA | 2.50 |
| Baby Cinch 30" | B-C | 2.50 |
| Baby Clown 22" | AA | 1.50 |
| Baby Di-Doe 21" | AA | 1.75 |
| Baby Era 18" | AA-A | 2.50 |
| Baby Era Bipe 16" | AA | 2.50 |
| Baby Sky Box 26" | A-B | 2.98 |
| Baby TC-2 Trainer 18" | AA | 1.98 |
| Baby V Shark 20" | A-B | 2.98 |
| Baby Barnstormer 25" | AA | 2.98 |
| Barnstormer 47" | A-B | 5.98 |
| Beechcraft 24" | A-B | 3.95 |
| Ben Howards Pete 30" | B-C-D | 6.98 |
| Berkeley Controliners: | | |
| Hot 32" | C-D | 2.00 |
| Bearcat 36" | C-D | 4.95 |
| Bee 24" | B | 1.50 |
| Bug 17" | A | 1.00 |
| Buster 24" | B-C | 2.50 |
| Hawker Sup. Fury 24" | A-B | 2.50 |
| Key 29" | B-C | 4.95 |
| Lil Duper Zilch 42" | A-B | 3.98 |
| Minnow 28" | A-B-C | 4.95 |
| Mustang 37" | A-B | 5.95 |
| Navion 25" | A | 2.50 |
| PeeWee Zilch 22" | A-AA | 2.50 |
| Super Duper Zilch 52" | C-D. | 6.95 |
| Thunderbolt 40" | C-D | 4.95 |
| Bipe Stunt Train. 22" | B-C-D | 3.95 |
| Brave 58" | A-B-C | 4.75 |
| Cessna 22" | AA | 1.98 |
| Cessna 36" | B-C | 5.98 |
| Chief 31½" | A-B-C-D | 7.50 |
| Chupp Autogiro 34" | B-C-D | 5.75 |
| Di Doe 29" | A-B-C | 3.95 |
| Dmeco Spl. 24" | C-D | 7.95 |
| Dmeco Spl. Jr. 16" | A-B-C | 3.95 |
| Dreamer 20" | B-C-D | 7.50 |
| Dynamic 26" | A-B | 3.50 |
| Fire Baby 13" | AA | 2.50 |
| Flip-Flop 24" | A-B | 3.50 |
| Flivver 24" | B-C (all alum.) | 3.95 |
| Flying Circus Jr. 16" | AA | 1.50 |
| Flying Clown 28" | A-B-C | 1.95 |
| Flying Saucer 18" | A-B | 1.98 |
| Flying Silver Saucer (4 ft. Diam.) | | 4.65 |
| Freshman 9 24" | A | 2.48 |
| Freshman 19 36" | A | 2.98 |
| Freshman 29 36" | B | 3.98 |
| Glo Bug 27" | B-C | 2.95 |
| Hell—Razor 14" | A | 5.95 |
| Hell—Razor 15" | B | 6.50 |
| Hell—Razor 16" | D | 6.95 |
| Howard "Ike" 24" | B-C | 2.95 |
| Infant Wagon 20" | AA | 1.95 |
| Junior Stunt 9 27" | AA-A | 3.48 |
| Junior Stunt 19 34" | A | 3.98 |
| Junior Stunt 29 40" | B | 4.98 |
| Key—Det 18" | AA-A | 2.95 |
| Kingpin 28" | A-B | 3.95 |
| Knockout | 18" AA | 2.50 |
| Little Bipe 16" | AA-A | 1.50 |
| Little Devil 16" | AA-A | 1.50 |
| Little Mustang 18" | (AA) | 1.95 |
| Little Schmoe 17" | AA | 1.50 |
| Luscombe Sedan 25" | AA | 1.25 |
| Maverick 24" | AA-A-B | 1.00 |
| Mini-Elich 19" | AA | 1.25 |
| Monocoupe 36" | B-C | 4.95 |
| Mr. Mulligan 22" | A | 2.25 |
| Mr. Mulligan 32" | B-C | 4.95 |
| New Era 28" | A-B-C | 4.95 |
| Nifty 23" | A-B-C | 4.95 |
| Papoose 32" | A | 3.95 |
| Pee Wee Pup 17½" | AA | .75 |
| Pee Wee Pursuit 16" | AA | 1.00 |
| Peter Pan 16" | AA | 1.50 |
| Phantom Era 28" | A-B | 3.50 |
| Piper Cub | 22" AA | 1.98 |
| Piper Cub Comet 35" | A-B | 2.98 |
| Piper Cub Monogram 32" | A-B-C | 4.95 |
| Piper Cub Trainer 23" | AA | 1.95 |
| Piper Vagabond 24" | AA | 2.98 |
| Piper Vagabond 35" | A-B-C | 3.98 |
| Pirate 40" | B-C-D | 4.50 |
| Pitts Special | 28" A-B | 4.95 |
| Polish Fighter 36" | B-C-D | 5.95 |
| Presto Liner 26" | A-B-C | 3.50 |
| Primer 16" | AA | 1.40 |
| PT Trainer 26" | A-B | 1.99 |
| Puddle Jumper 19" | AA | 1.00 |
| Rookie Jr. 18" | AA | 1.00 |
| Rookie Trainer 32" | B-C-D | 4.95 |
| Scout 24" | AA | 2.50 |
| SE 5 17" | AA | 2.50 |
| SE 5 32" | B-C-D | 5.95 |
| Senior 9 | | 3.98 |
| Senior 19 | | 3.98 |
| Senior 29 | | 4.98 |
| Senor Puddlejumper 25" | A-B | 1.95 |
| Sharpy 47" | C-D | 4.95 |
| Sky Box Trainer 36" | B-C-D | 3.95 |
| Sky Box Stunt 42" | B-C-D | 3.95 |
| Sophomore 9 26" | A | 2.48 |
| Sophomore 19 35" | A | 2.98 |
| Sophomore 29 39" | B | 3.98 |
| Speedster 12" | AA | 2.50 |
| Speedwagon 20 12" | A | 3.95 |
| Speedwagon 30 15" | B | 4.95 |
| Speedwagon 30 18" | C-D | 5.95 |
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| Squaw 29" | A-B-C | 5.75 |
| Stinson Sta. Wagon 43" | B-C-D | 5.50 |
| Stinson | 22" AA | 1.95 |
| Streamliner 25" | B-C-D | 4.00 |
| Stunt Rent 18" | AA | 1.00 |
| Stuntmaster 40" | B-C | 5.95 |
| Stuntwagon 30 44" | B-C | 5.95 |
| Stuntwagon 58" | D | 7.95 |
| Super Bipe 28" | B-C-D | 4.95 |
| Super Cinch 36" | B-C | 2.95 |
| Super Clown 58" | B-C | 2.95 |
| Super Sky Box Stunt 47" | C-D | 4.50 |
| Super Solution 18" | A | 2.25 |
| Super Squirt 21" | (Jet) | 5.95 |
| Super Stunt Rent 30" | A | 1.95 |
| Sweet Chariot 18" | AA-A | 2.50 |
| T-28 N.A. Trainer 30" | B-C | 5.95 |
| Taylorcraft 35" | A.B.C. | 2.95 |
| Thing B | | 3.95 |
| Trail Blazer 24" | B-C-D | 2.98 |
| Trixter Babe 20" | AA | 1.25 |
| Trixter Invert Jr. 40" | A-B | 3.95 |
| Trixter Prof. Trainer 32" | A-B | 4.50 |
| Trixter Profile 32" | A-B | 2.50 |
| Trixter Profile 38" | B-C | 3.50 |
| Trixter Twin Profile 47" | B-C | 5.00 |
| Tuffy 24" | AA-A | 1.98 |
| Vampire 40" | B-C | 4.50 |
| Viking 51" | C-D | 8.75 |
| Waco 33" | B-C | 5.95 |
| Warrior 36" | A-B-C | 4.95 |
| Wee Duper Zilch 34" | AA | 2.95 |
| Wee Willie 18" | AA-A | 1.95 |
| Whirlaway 11" | AB | 3.98 |
| Wildfire 23" | B-C-D | 1.95 |
| Wing Ding 18" | AA-A-B | 2.25 |
| Wing Dingus 16" | AA | 2.25 |
| Yank 28" | AA | 1.50 |
| Zing 24" | C-D | 4.95 |

**BURIED IN THIS AD**
**are most of the new items. Sometimes there isn't time or space to include them. But, if available, we have it.**

## ACCESSORIES

**FUELS** (Continental U.S.A. Only)

| For Ignition | Pts | Qts |
|---|---|---|
| Ohlsson #1, #3 | .85 | 1.50 |
| Power Mist #6 | .65 | — |
| For Glo | | |
| Ohlsson #2, #4 | .85 | 1.50 |
| Ohlsson AA | .85 | — |
| Powermist Glo | .95 | — |
| Powermist Spitfire | | 1.60 |
| Ranger Glo | .90 | — |
| Testors 39 | .75 | — |
| Dynaglo | .85 | — |
| Ranger AA | .90 | — |
| Bloe Blazer #1 | .70 | — |
| Blue Blazer #2 | .80 | — |
| Ranger & Infant | .90 | — |
| OK Cub | .85 | — |
| Spitzy | .85 | — |
| Supersonic 100 | .80 | — |
| Supersonic 1000 | 1.00 | — |
| Supersonic Ultra Glo | .90 | — |

Pouring Spout For pint cans . .10
Hot Fuel Proofer . .25, .35 & .45

**PROPELLERS**

Rite Pitch Stunt 8, 9, 10, 11, 12, 13, 14 in., 6 and 8 pitch . . . . .25
Rite Pitch 8, 9, 10, 11, 12, 13, 14 in., 6 & 8 pitch . . . . .25
Scamper Plastic 6½" 3p., 6" 4p. .25; 9" 5p. .45 10" 10p., 11" 8 p., .55
Super Spl. 8", 9", 10" 11" in 4 & 6 p. . . . . .15
Veco 6" 3p, 4p, 7" 4p, 5p, 8" 5p, 6p, 9" 6p, 7p. (6"—25¢; 7" & 8"—30¢ 9"—35¢)
Also Ohlsson, Flo-Torque, Power, etc.

**RUNNING & TEST BLOCKS**

| | |
|---|---|
| E-Z Running Stand | 1.50 |
| Universal Running Blocks | 1.50 |

**METAL GAS TANKS**

Dale Stunt Tanks—All Sizes . . .65
#1—1½x1¼x⅝; #4—3½x1¼x⅝;
#2—2½x1¼x⅝; #6—1½x1¼x4½
#3—3½x1¼x⅝; #12—4½x1¼x⅝;
#18—2½x1¼x⅝;
Proom: 1¼x1¼ or 2 hor. or ver. .50
1¼x4½x2 Sh. . . . . .60
1⅝x 3½x22½ Wedge . . .80
1⅝x1¼x3¼ ½—Rod Stunt .80
Also Marco, Berkeley, Arme

**IGNITION COILS**

| | | | |
|---|---|---|---|
| O.K. | 1.50 | Rogers | 2.00 |
| O.K. Twin | 4.00 | Wilco | 1.95 |

**CONDENSERS**

Regular — .20 . . . . Smith Metal .35

**SPARK & GLO PLUGS**

| | |
|---|---|
| Arden Glo (V2 or V3) | .35 |
| Champion Glo V, V2, V3 | .75 |
| Champion V, V2, V3, VR1, VR2 | .50 |
| McCoy Hot Point | .65 |
| Ohlsson Glo (V, V2 or AA) | .65 |
| O.K. Glo-plug (V2 or V3) | .59 |
| Plug washers | .05 |

**IGNITION ACCESSORIES**

6 ft. Hook-up wire . . . . .25
Arden Booster Jack . . . . . 1.25
Austin Booster Plug-in . . . . .30
Midget Switch: slide—.25 Turn .50
Ohlsson Snap-Pack . . . . .35

**PROP SPINNERS**

1½"-.25¢; 1¾"-.30¢; 2"-.35; 2½"-1.10
2" Needle Nose 1¾" dia. . . . . 1.15
2½" — .25 . . . . . .50
Plastic 1½" . . . . . .50
Scamper Plastic 1¼", 1¾", 2", 2¼" . . . . . .45

**WHEELS**

| | | |
|---|---|---|
| Semi Pneumatic (pr) | 2" | 1.10 |
| 2½" — 1.25 | 3" | 1.75 |

Sponge Rubber, Dural hub (pr)
1"-.75; 1" 30¢ 1¼"-.35¢ 1⅝"-.45
1½"-.60¢ 2"-.75
Tail Wheels ¾", 1" . . . . . .15
Tracker Mags (pr) 1½" or 1¾" .40
1¾", 2"—50¢; 2½", 2½"—60¢
2¾" . . . . . 1.00
3" . . . . . 1.25
3½" . . . . . 1.50

**AA ACCESSORIES**

| | |
|---|---|
| Shut-off Valve (state engine) | .65 |
| F-Z Minimount | 1.00 |
| .004 or .006 x 2—36" | .35 |
| .006 x 2—52" | .50 |
| Flex Needle Valve (infant, spitfire tory Jr. & 049) | .50 |
| Flex Needle Valve (Cube) | 1.00 |
| Spinners (state engine) | .50 |
| Presto Starter (state engine) | .25 |
| Prope (state engine) | .15 |
| Tanks (state engine) | .50, .60, .75 |
| Neoprene (ft) | .15 |
| Fuel Meter | .50 |

**MISCELLANEOUS**

| | |
|---|---|
| Ratt. Box Pen. and Medium | .40 |
| | pqt. .50 |
| Brass Tubing 1/16", 3/32", 1/8" | .20 |
| Copper Tubing ⅛" OD, per ft. | .20 |
| Finger Guard | .40 |
| Fuel Pump ½ pt., pt. | .69 qt. .79 |
| Presto Disc Starter | .35 |
| Metal Motor Mounts, Sm—30¢; Lg. | .50 |
| Metal Pump Can | .75 |
| Needle Valve Exten. flexible | .25 |
| Neoprene Tubing, per foot | .30 |
| Spitfire Timer Valve | 2.95 |
| Transparent (reg. or AA) ft. | .15 |

## SPECIAL SOUVENIR BARGAIN

**The manufacturer of a well-known engine, after selling 80,000 at $9.95, has decided to go out of production. We have his remainder of 1,000 complete sets of finished and unfinished castings and parts: Cylinder, piston, piston pin, connecting rod, needle valve, gas line, timer, crankshaft, crankcase, cam, etc., including screws, gaskets, nuts, etc.**

You get a complete set, except spark plug and tank. An interesting souvenir of a model engine in the raw for your den or desk.

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We don't believe in hoarding, but you won't get a bargain like this anywhere else.

By making a tremendous purchase, AHC has acquired from Rite-Pitch a fine line of finely finished and lacquered high grade, square-tip propellers at a very low price and is passing the savings on to you.

8" 6p.; 8" 8p.; 9" 6p.; 9" 8p.; 10" 6p.; 10" 8p.; 11" 6p.; 11" 8p.; 12" 6p.; 12" 8p.

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- Chapter 3—Acquainting Yourself.
- Chapter 4—Breaking in Engine.
- Chapter 5—Installation.
- Chapter 6—Flying.
- Chapter 7—Other Uses.
- Chapter 8—Operating Accessories.
- Chapter 9—Trouble Shooting
- Chapter 10—Converting Ignition to Glo.
- Chapter 11—Hints and Helps.
- Chapter 12—Design Features.
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| Bellcrank 2" or 3"—10¢, 4" | .15 |
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| .008, .010, .012: 2-55 | .50 |
| .008, .010, .012, .014 2-76 | .65 |
| .008, .012, .016: 2-150 | 1.00 |
| Stranded .015, .021 55' 1.00; 70' 1.25; 200' | 2.50 |
| Berkeley Metal Flight Reel | 1.25 |
| Berkeley Metal Handle | 1.00 |
| Elevator control horn; Vaco | .50 |
| Elevator hinges 4 for | .10 |
| E-Z Plastic Control Handle | .65 |
| Flex Lead-in wire AA or A-B 3 ft. | .15 |
| Instant-Use Handle, 5" or 8" | .50 |
| Luzon Clips A. B. C or D Pr | .10 |
| **PYLON control lines** | |
| .008, .010, .012, .014, .016 dia. 2-52' lines | .60 |
| .008, .010, .012, .014, .016, dia. 2-70' lines | .75 |
| Flexible 2-52' 1.50; 2-70' | 1.95 |
| Pylon Control line Reel | 1.25 |
| Pylon Plastic Handle 5" or 6" | .85 |
| Reel Pal Reel | 1.00 |
| Simplex Handle & Reel | 1.50 |
| Stunt Bellcrank & Elev. Horn | .25 |
| Swivels, small 15¢ pr.; large | .20 |
| Tommy Handrest | 1.75 |
| U-Rely Contr.—7.50; cable | 8.50 |
| U-Rely Remote | 12.50 |
| Veco Bellcrank .30 & | .25 |
| Wood Control handle | .25 |

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| Plywood (6"x12") | 1/32" | .20 |
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| Spinnet Starter | | 5.00 |
| Universal Needle Valve | | .50 |
| Flexible | | .75 |
| Vibrator | | 2.00 |

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|---|---|
| Chris-Craft 28" C-D | 6.75 |
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| Chris-Craft Runabout 25" RCD | 6.25 |
| Harco 25" R-C-D | 6.25 |
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| Cox. 15 or .099 Engine only | 8.95 |
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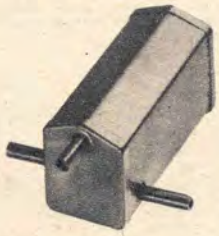
# Showcase

**Contact your hobby shop for items shown. All information is checked carefully, but is subject to change.**

Anybody in the crowd claim the Half-A engines are too small to power a speed model with any degree of success? Let him step up and meet the Half-A Hell Razor which has been test flown at 87 mph. This speedster is just one-half the size of the D Class record holder. Consolidated puts out the kit which makes up into a 9.5 inch wing and an 8.75 inch fuselage. With a Wasp the complete A/2 Hell Razor weighs but 2.25 oz. Really tiny and light. With kit you get a Redi-carved fuselage bottom, top and fairing block. Wing, elevator and stab are cut to outline shape. Control system is included. Price is $2. . . . Speed-O-Laq Products Co. announces a new model aircraft "undercoat" for balsa and other woods. S-O-L reports the new Undercoat gives a smooth, metal-like finish to all wood parts. Lightweight, pigmented, the new material sands easily and hides wood grain and blemishes. According to the makers who also produce the Speed-O-Laq Flight Tested dopes and cements, the mixture permits a metallic finish not obtainable with dope alone. . . . Froom Mfg. Co., producers of assembled fuel tanks and spun aluminum spinners, now have a "Square-Wedge" tank for greater fuel capacity in less space. Depth is ¾ inch, width is 1 inch, and it comes in 4 lengths: for Half-A to .09 cu. in. disp. engines, 1.25 inches with .5 oz. capacity, 1.5 inches with .6 oz. capacity, or 1.75 inches with .7 oz. capacity. For the larger motors the Square-Wedge is 2.5 inches long with capacity of 1 oz., good for a team flying tank. The S-W, like all Froom tanks, is built from non-corrosive tin plate and is "inside-soldered." Other Froom tanks are available in square, round, half round and wedge shapes. The larger tanks are equipped with patented mounting brackets . . . Something to look for: Miniature Aircraft Corp.'s new models which will include a 24″ Republic F84F for Jetex, a 30″ Fokker D-7 for up to .09 motors. (*Continued on page* 10)


(*Continued from page 4*)

**Midgets . . .** Will you please tell me the difference between the Long Midget, Midget Mustang and the Minnow?

*Don McNeely, Dubling, Ga.*

• The Long Midget and the Midget Mustang are the same airplane; the "Mustang" part was dropped so as not to confuse it with the North American F-51.

Although both the Minnow and the Midget look alike at first glance, they are actually quite different. The Minnow has a wing with straight leading edge, while on Long's plane it is tapered. Span of Minnow: 18'11", that of Midget: 18'6"; the Minnow's fuselage is a foot longer.

. . . Is it possible to obtain copies of plans for the midget racing plane designed by Neal Loving? I would like to build one myself.

*Raymond H. Reed, Jr., Alhambra, Calif.*

• Plans for Loving's Midget are not available, and as far as we know no drawings of any of the small racers are on the market. All these ships are individually designed and the owners are not apt to part with their plans.

**Portings and Patents . . .** You stated that the K&B Infant has the same type of induction porting as the Arden engine. This type of porting being patented, does this mean the patent for Arden porting has expired? I also noted the O.K. Cub patented radial injection of induction parts which the Arden already had, and also the Baby Spitfire (not patented). Please clear this up for me.

*E. Reeves, Whittinsville, Mass.*

• The phrase "with Arden type porting" refers to an arrangement where the bypass consists of a groove in the lower cylinder wall which forms a passage against the piston skirt. Arden engines use this arrangement, but have six passages and a 360 degree intake port connecting the top of them.

Any slight variation in one of the construction details is sufficient to avoid infringement of an existing patent. K&B had less milled bypass slots and eliminated the bored 360 degree intake port. O.K. Cub engines use two bypass ports to carry fuel from the base into a circular distribution manifold outside the cylinder. Fuel passes into the combustion chamber through three drilled holes passing through the exhaust port webs.

Another arrangement is used on the Baby Spitfire engine. A separate aluminum sleeve spacer between the cylinder and the base casting forms a tubular bypass. This draws fuel from two small intake ports cut in the side of the cylinder just below and at 90 degrees to the exhaust ports.

With any arrangement, engine efficiency depends on clean passage to allow rapid gas transfer combined with a small total volume to avoid low base compression. Arden used a very simple and efficient method, and other engine manufacturers resort to similar minor variations to avoid patent trouble.

**More on 47s vs. 51s . . .** I would like to make a few remarks on the controversy about the respective merits of the P-47 and P-51. Mr. Charles S. Cobb is very much in error when he states that the 47 had the greater range. I flew P-38s and P-51s in combat while in the Eighth Fighter Command in England in 1944.

If you recall the first American raids on Berlin in March 1944, you will remember that the P-38 groups and the one or two P-51 groups were the only ones to escort the bombers through the target area. The P-47s had to turn back short of Berlin due to their limited range.

After we changed to the P-51s, our group flew one of the longest escort missions of the war, at least it was one of the longest at that time (August 1944). The straight-line distance was 1600 miles round-trip, from England to the Polish port of Gdnyia. We were in the air a total of 7 hours and 15 minutes.

*W. J. Lanham, Midland, Tex.*

**Henri Mignet's Address . . .** In your July 1950 issue of Air Trails I came upon A. R. Weyl's article discussing the "Flea" aircraft designed by Mr. Henri Mignet. Mr. Weyl states that at the present time Mr. Mignet is residing in Argentina.

Would you be kind enough to forward me Mr. Mignet's present address, or as an alternative refer me to a source where I could purchase plans for his "Butterfly" (H.M. 294)?

*W. Kinash, C/o Trans Canada Airlines, Montreal Airport, Dorval, P.Q., Canada*

• Sorry, we do not know Mr. Mignet's address in South America, but suggest you contact Reseau du Sport de l'Air, 183 Cours Lafayette, Lyon (6e), France.

**Another Helicopter Pioneer . . .** While reading your article "Mr. Sikorsky and the Helicopter" in a recent issue; I happened to think of another pioneer in the helicopter field, Mr. Alfred Jackson, president of Aeronautical Products Inc. of Detroit, Mich.

Mr. Jackson and Mr. Frank Robson worked long hours with their technicians to develop a better helicopter. When the craft was completed Charles Wittaker, veteran pilot, was named chief test pilot and preliminary tests were made with the 'copter "harnessed to the ground" with six-foot ropes. The first "free flight" was on April 17, 1944, before a group which included a member of the Civil Aeronautics Authority and officials of the Aero Club of Michigan.

It ascended to a height of more than 25 feet, maneuvered forward and backward, and returned gently to the ground within inches of the take-off point.

The A.P.I. helicopter made numerous flights, including the first commercial delivery by helicopter. It had a 130 hp air-cooled engine and its rotors described a 30-foot circle in the air. Cruising speed of 85 to 90 mph.

Unfortunately, Mr. Jackson was killed on a flight to his plant one day in a helicopter accident. The plant and its contents were sold by his widow.

*Wayne Janicki, Sharon Springs, N. Y.*

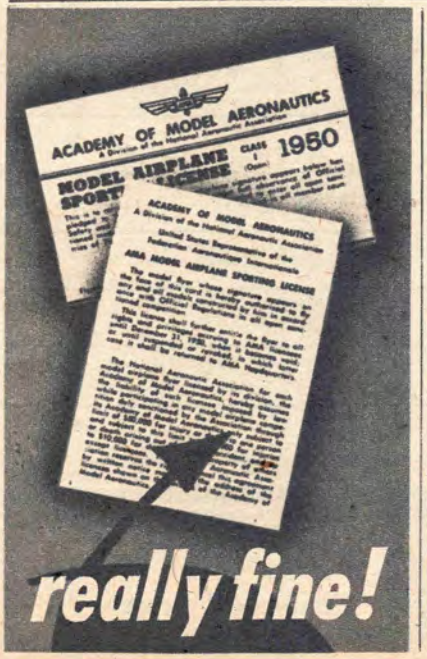
**Not the Only One . . .** I am sure that I am not the only one who appreciated your greatly detailed plans of the MiG 15 Russian jet fighter.

*Joe Bailey, Salina, Kans.*

# Showcase

Try your favorite hobby shop for items presented here. Write the manufacturer if you can't find it.

A remarkable new flexible plastic fuel tank has come from Sullivan Products, makers of Pylon Brand wire and accessories. The flexible construction of this new tank makes it crash-resistant and it mounts easily in any type of plane. The shape is a combination wedge and square to give, according to Matt Sullivan, an improved feed system. Translucent, it indicates fuel supply at all times; the capacity can be adjusted by varying the fuel level tube. The non-corrosive plastic material and aluminum tubing resist all standard, glow plug fuels. . . . Something new on your dealer's shelf is the "Perfect" non-kinking, hot fuel resistant, clear gas line in an easily recognizable 3-spool unit. The Half-A size line is 10¢ a foot, the medium size 15¢ a foot and the heavy-wall, large size, 20¢ per foot. . . . Henry Engineering Co. is proclaiming its new *Taylor Cub* kit for the smaller .035 to .074 engines. Span is 35 inches, wing area 158 sq. inches, weighs in between 5 to 7 oz. . . . DeBolt's Dmeco All American series had progressed up to the *Stunt* model at last look. This job has what Harold calls "asymmetrical stability" and uses .19 to .29 powerplants. Span is 36 in.; wing area is 300 sq. in; fuselage length is 18.5 inches; weighs in about 18 ounces. . . . Engineered Toys of Gary, Ind., whose Rite-Pitch line of cements, tanks and props are well known, are concentrating on 15¢ and 25¢ propellers which include sizes and shapes for all types of models. The Rite-Pitch and the R-P Super Stunt are twenty-five centers made from selected birch and walnut with a high-gloss lacquer finish. Sizes run from 8 in. diameter, 4 inch pitch to 14 inch diameter with 8 inch pitch. The R-P "Little Propellers" for the small engine sell for 15¢ each and are made for specific engines. Rite-Pitch's "Super Special 15" are low price props, each is hand-sanded, lacquered and balanced. From 8/4 to 10/8.


One of the many fine features of an Academy of Model Aeronautics' model flyer's license is the public liability coverage ($50,000 and $100,000 personal injuries; $10,000 property damage). By subscribing to the safety rules of the AMA, you can obtain the license and liability coverage. All licenses are on a calendar year basis, so the sooner you sign up the more you get for your money.

**Academy of Model Aeronautics**
**1025 Conn. Ave., Washington, D. C.**

**On July 1, '51, I will be..... years old (license classification is based on your age on July 1). Please issue license checked:**

Class III—(up to and including 15)..$1 ( )
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Original U-Control Plane. High maneuverability. Kit includes control handle, flying lines, wheels.. **$6.95**

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Keeps flying lines off ground ready for instant use. Take-off unassisted, reel in to land. **$7.50**

**FUEL REGULATOR**

Supplies fuel under pressure in any position until tank is dry! Complete with Pressure Fuel Tank. **$2.50**

## Jim Walker FIREBABY

Buy it ready to fly, complete with flying lines and full instructions for flying and stunting. Wing span 19 in., weight with motor 3 oz. All parts are finished, painted, fuel-proofed. Just slip them together, bolt on wing and motor, "gas up" and you're ready to take off!

Without Motor ..... **$2.50**

**$7.50**
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# air notes | AVIATION TODAY AND TOMORROW

**Navy's Sabre.** North American's F-86 Sabre jet fighter will join the Navy as the F2J and operate from carriers. Navy version of the "86" will be built by North American at Columbus, Ohio.

**Jet Bombers Cross Ocean.** First jet bombers to cross Atlantic from U. S. to England were four North American RB-45C Tornados accompanied by KB-29 aerial tankers. Another fast crossing, this East to West, was made by a British Canberra twin jet bomber from Ireland to Gander, N. F. in slightly over four and a half hours. Piloted by RAF Wing Squad. Leader A. E. Callard, DFC, the Canberra came to America for evaluation by Air Force as a prospective USAF light bomber. Air Materiel Command has issued an order for an undisclosed number to be built under license by Glenn L. Martin Co.

**Military Beaver.** Winner in liaison plane test at Wright-Patterson AFB was Canadian-designed and built deHavilland Beaver bush plane. It competed against a field of lightplanes of U. S. manufacture. Beaver's service designation will be L-20.

**Goodby, Cleveland.** National Air Races, proposed this year for May 19-20 at Cleveland, Ohio, were canceled by the Air Race Committee. Local events planned for the 1951 racing season will be run off at Detroit and Chattanooga.

**Fairchild Expansion.** A 32-acre site at Wyandanch, Long Island has been chosen by Fairchild Engine & Airplane Corp. for its guided missile plant.

**Sapphire Thunderjet.** A swept-wing Republic F-84F Thunderjet powered by the world's most powerful production jet engine, the British-designed Sapphire rated at 7,200 pounds of thrust, or more than 13,000 hp at the speed the plane flies, was recently test flown at Edwards AFB, Muroc, Calif. The Sapphire was developed by Armstrong-Siddeley and will be built here under license by Wright Aeronautical Corp. and Buick Division of General Motors. Designated the J-65, it will be installed in all production versions of the F-84F. With the two 450-gallon auxiliary wing tanks, the 84-F will make a formidable long-range, high-speed fighter-bomber.

**Cutlass on Order.** A contract for a substantial number of Chance Vought F7U-3 tailless twin jet fighters has been issued by Navy's Bureau of Aeronautics to Chance-Vought Aircraft. No information as to difference between earlier F7U-1 and the 3 model has been released. Plane is listed by Navy in "more than 600 mph" class.

**Aero Commander.** Aero Design and Engineering Co. of Tulsa, Okla., designers and builders of the twin-engine executive Aero-Commander, have on hand sufficient material for twenty airplanes. First deliveries are expected to be made on September 1st. The airplane is being considered by the Air Force for liaison-courier-utility duties. Power is two 260 hp Lycoming engines.

**Jets in Korea.** How good are jets under wartime condition was often asked during the early stages of the Korean war. Now the answer is available. Take for example the case of FT-500, an F-80 Shooting Star with the 49th Fighter-Bomber Group. The old girl was an early arrival at the front, having been going steady with USAF pilots since May 1950. Since then she has flown 180 sorties and has accumulated more than 530 hours of combat time.

In that period she had only two engine changes, flying more than 300 hours on one powerplant without any malfunction. And the airplane was not treated gently. It had to take off from rough, metal-strip runways, heavily overloaded, frequently carrying two 1,000 lb. bombs under the wings. Flying at tree top altitude in ground support missions, FT-500 and sister ships were subjected to ground fire, often came back with large portions of wing, tail surfaces and fuselages torn out, and jet engines damaged.

Through all this the F-80's proved their ruggedness and ability to "take it" and come back fighting. The Lockheed Shooting Stars alone accumulated in the first seven months of the Korean war an impressive score of 26,356 sorties, dropped 1,662 tons of bombs and fired 49,873 rockets as well as 20,000,000 rounds of ammunition. They destroyed 94 enemy aircraft.

**"Stormy Petrel"** was the F-51 Mustang in which Pan American World Airways' Captain Charles Blair crossed the North Atlantic from New York to London in seven hours and 48 minutes. His average speed for the non-stop 3,500 mile journey was 450 mph, fastest ever made by a propeller-driven airplane. The plane, purchased by Blair from Hollywood racing pilot Paul Mantz, was modified to hold 865 gallons of fuel in wings without use of external fuel tanks.

**First Aircraft Specs.** An ancient Army document bearing specifications for the first heavier-than-air flying machine turned up in some old files at Randolph Field, Texas. An original of Signal Corps Specifications No. 486, it was issued by Brig. Gen. James Allen, then Chief Signal Officer, U. S. Army. Dated December 23, 1907, it sets forth requirements that the flying machine be capable of carrying two people or a combined weight of 340 lbs., and enough fuel to fly 125 miles at 90 mph.

**Convertaplanes Coming.** A design competition for the construction of an observation-reconnaissance convertaplane is being held by USAF Air Materiel Command at Wright-Patterson AFB. Seventeen aircraft companies have submitted designs for a plane which can take off and climb vertically, then fly like a conventional plane.

**Defogging the Jet Pilot.** An electrically heated windshield which enables pilots to fly bad weather missions with clear vision has been developed by Libbey-Owens-Ford Glass Co. for the Northrop F-89 twin jet all-weather fighter.

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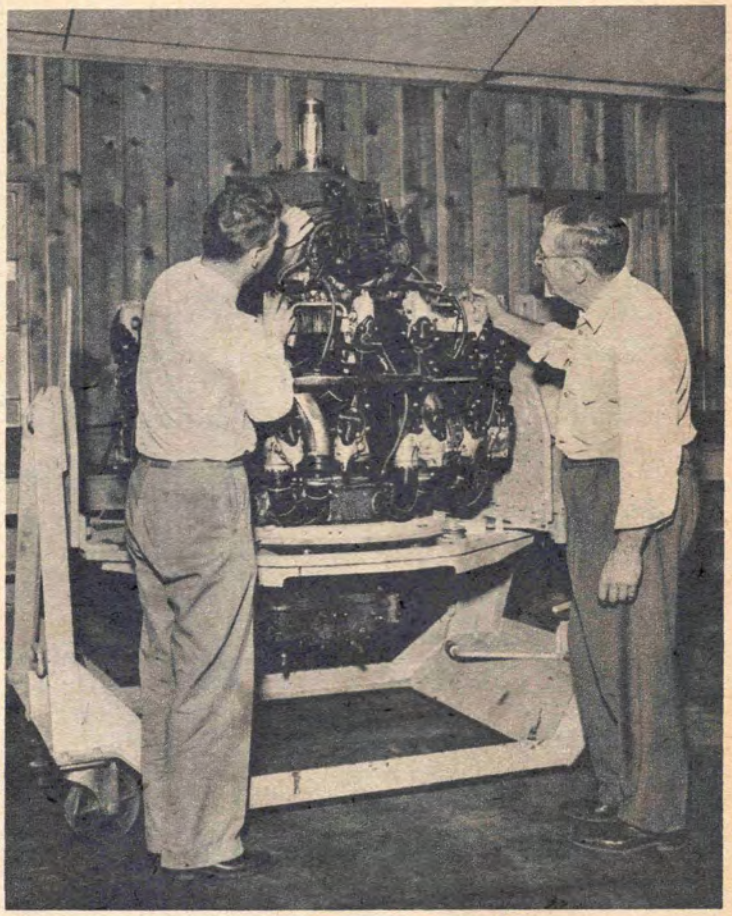

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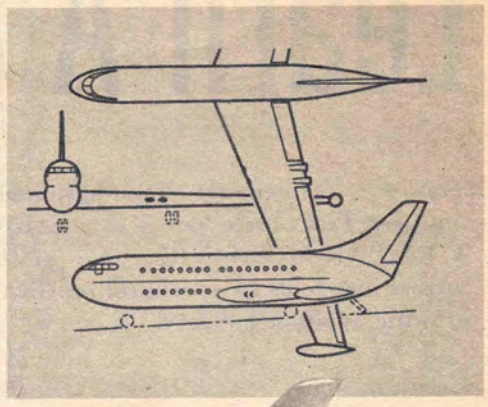
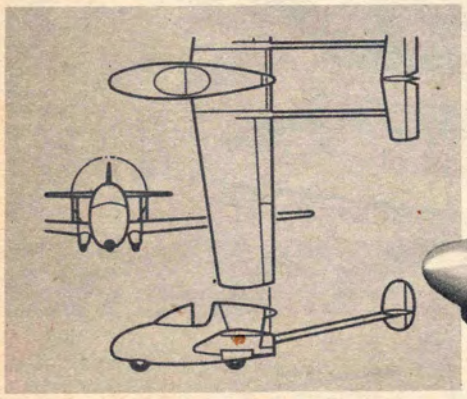
1926 ★ TWENTY-FIFTH ANNIVERSARY YEAR ★ 1951

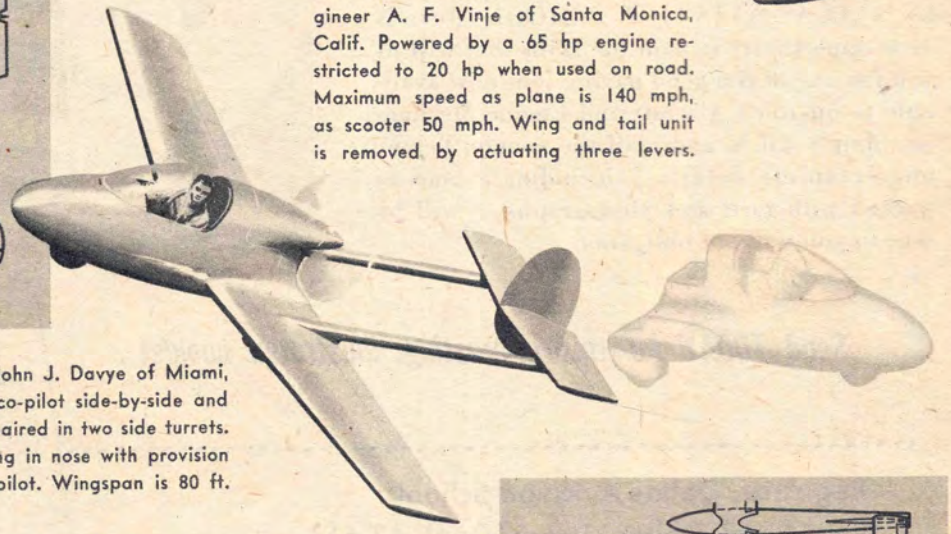
# Airmen of Vision
## DESIGN COMPETITION



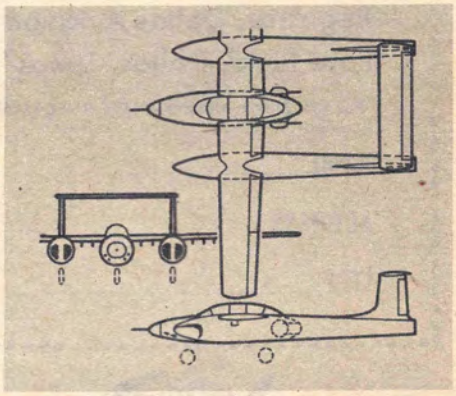
Selected as the outstanding design of this month is the "America," a 60-passenger jet transport by Philip Pauley of So. Plainfield, N. J. Interesting feature of plane is absence of horizontal tail to reduce drag. Balance is achieved by locating the swept-back wing well rearward. Plane has porous bronze wing surface to increase wing efficiency. Span 152 ft., cruising speed 550 mph.



The Fly-Scooter, combination airplane and motor scooter by aeronautical engineer A. F. Vinje of Santa Monica, Calif. Powered by a 65 hp engine restricted to 20 hp when used on road. Maximum speed as plane is 140 mph, as scooter 50 mph. Wing and tail unit is removed by actuating three levers.



Attack and ground support jet plane by John J. Davye of Miami, Fla. Carries crew of three with pilot and co-pilot side-by-side and gunner behind handling four cal. .50 mg's paired in two side turrets. Forward armament consists of a .50 cal. mg in nose with provision for four 20-mm cannons on side fired by pilot. Wingspan is 80 ft.



Air Trails has opened its columns to those who are interested in presenting plans for "aircraft of the future." Rules governing the competition are as follows: Three-view sketches of the proposed aircraft will be required. These should be not less than 8½ x 11 inches for the entire three-views. Give sketches of the complete airplane in three-quarter front and rear positions. Photos of a model of proposed design may be included. Information on power plant(s), estimated performance, dimensions, and explanations of any unusual features are required. Data as to age, occupation or schooling of the entrant will be welcomed by the editors and judges. The designs may be of any type, commercial aircraft, military planes (fighters, bombers, troop transports), planes for the private flyer and single-engine sporting or racing craft. The entry each month judged the most practical or of the greatest significance will receive an award of $25. Payments of $5 will go to the runners-up. Entries will not be returned and for that reason those participating should keep copies of all material submitted. Mail entries to Airmen of Vision, c/o Air Trails, 304 E. 45th St., New York 17, N. Y. Editors regret that because of large number of entries they cannot enter into correspondence on A. of V.

# Plymouth's 5TH International Model Plane Contest will be held August 22 thru 27

## DETROIT AGAIN HOST TO "OLYMPIC GAMES OF MODEL AVIATION"

Plymouth Motor Corporation announces that 96 trophies and $4725 in Savings Bonds will be awarded this August to winners in the 5th International. Plan now to enter!

At Detroit you'll meet 500 of the world's top model fliers, chosen on the basis of records made in AMA-sanctioned Plymouth dealer contests. You'll compete using the finest facilities. Nine hard-packed speed, stunt and scale circles will be used for three days at Belle Isle Park. Almost 2½ square miles of Selfridge Air Force Base, with exceptional retrieving equipment, will be available for the free flight events.

This is the top event in model plane flying—sponsored by Plymouth in conjunction with the Aero Club of Michigan, and sanctioned by the Academy of Model Aeronautics. It has attracted world-wide attention including an article, last year, in *The Saturday Evening Post*.

The competition is divided into three different age groups as follows: FRESHMAN—11 years old or under, but not yet 12; JUNIOR—12 to 15, but not yet 16; and SENIOR—16 to 20, but not yet 21. (Ages as of July 1, 1951.) Here's the list of events and awards.

**FRESHMAN**

Outdoor Rubber (Unlimited)
Hand Launched Glider, Class A
Free Flight Gas, Class ½A
Control Line Speed, Class A
Control Line Stunt, Class ABCD

*FRESHMAN AWARDS:*

1st, 2nd and 3rd Places—Trophies
High Point—Trophy and $100 Bond
2nd High Point—Trophy and $50 Bond
3rd High Point—Trophy and $25 Bond

**JUNIOR**

Outdoor Rubber (Unlimited)
Hand Launched Glider, Class A
Free Flight Gas, Classes ½A, A, BC
Control Line Speed, Classes A, B, CD
Control Line Speed, Jet
Control Line Stunt, Class ABCD
Control Line Scale, Class ABCD
Control Line Team Racing, Class B
Navy Carrier Deck
Combat

*JUNIOR AWARDS:*

1st Place—Trophy and $100 Bond
2nd Place—Trophy and $50 Bond
3rd Place—Trophy and $25 Bond
High Point—Trophy

**SENIOR**

Outdoor Rubber (Unlimited)
Hand Launched Glider, Class A
Free Flight Gas, Classes ½A, A, BC
Control Line Speed, Classes A, B, CD
Control Line Speed, Jet
Control Line Stunt, Class ABCD
Control Line Scale, Class ABCD
Control Line Team Racing, Class B
Navy Carrier Deck
Combat

*SENIOR AWARDS:*

1st Place—Trophy and $100 Bond
2nd Place—Trophy and $50 Bond
3rd Place—Trophy and $25 Bond
High Point—Trophy

*Scene at Award Banquet following the 4th International, last August*

A Youth Activity Sponsored by **Plymouth**
MOTOR CORPORATION, Detroit 31, Michigan

- **SEE YOUR PLYMOUTH DEALER** for complete details, rule books and entry blanks. Entries close July 31, 1951.

# Air Mobilization

■ This report will be mostly about aeromodeling which means so much to the future recruits of the air forces and air industries.

Since today's needs are urgent, tomorrow's are easily neglected. But the 2 million or more aeromodelers in this country have the voice—if they will use it—to see that their place in the big plan is understood.

Don't ever believe that what you say or do is unimportant, no matter what your age or where you live. There is no age limit, high or low, for service to this cause.

The more of our public officials who can be made aware of what aeromodeling means in their own areas, and what it does for those who engage in it, the easier it will be to protect this American activity.

But officials won't know unless the general public is brought to know. Every local meet or unusual model is your opportunity to sell people in your community; sell them by working demonstration.

Models are not toys. That is a big point to get over. Models are devices for gaining practical knowledge of aviation.

*Flying or scale models of airplanes are no more toys than are those tested in wind tunnels by designers. The wind tunnels develop new planes. The home-made ones prepare the pilots who will fly these planes and the ground technicians who will keep them flying.*

Aviation people themselves, strangely blind to the importance of modeling which gave many their start, are not helping.

So the more that the modelers themselves do this year to gain nation-wide respect for the value of their activity, the more modeling will be strengthened.

**The Navy** has done the most in Washington for the model movement. For a second year, the AMA Nationals will be held at the Naval Air Station at Dallas, Texas, July 23-29.

This annual championship contest in 1950 brought 1,000 contestants from every state in the Union. Despite bad weather, crowds on the field were estimated as high as 100,000.

That shows how aeromodeling can attract the public when run right. The sponsoring Exchange Club of Dallas, a good host last year, is eager to apply what was then learned in perfecting every detail.

Costs to contestants will be as low as possible. They'll eat Navy chow and can buy food at a discount from concessions on the field.

Lt. John Burton, 1950 winner of the Brewer trophy for outstanding work in aviation education, is busy at the Washington end.

The Navy's "carrier landing" contest, in which U-Control models land on a miniature deck, is popular. And for the New York Daily Mirror meet this month at Grumman Field, L. I., more than 200 contestants had signed up before the lists were open more than a few days.

**NAA Academy** of Model Aeronautics announces Ray Matthews, Oklahoma City, as Contest Board Chairman. This Board, composed of 22 members (2 from each of 11 regions), makes rules for contests and record events, under general authority of the world-wide Federation Aeronautique Internationale.

*The same exacting care that is used for major air races and record breaking by big planes, is applied to aeromodeling.*

Mr. Matthews is a designer of radio-controlled models. He was the one who flew a watch, one of the prizes in the Wakefield competition last year, across the Rio Grande. This was the first known instance of international cargo delivery by model aircraft.

AMA plans for the Plymouth International Meet in Detroit, Aug. 22-27, are nearing completion. Rumored plans for a model contest among Air Force personnel are not expected to come off this year.

**Civil Air Patrol** is planning to hold its annual exchange of cadets this year on a larger scale than ever. To promote international good will, more than 100 outstanding CAP cadets will be apportioned among 13 countries while an equal number of young men from those nations will tour the U.S.

The International Drill Competition also is on. At least 28 of the 52 CAP State and Territorial Wings plan to send their winning teams to regional competitions. The winning U.S. team of 34 precise steppers will compete with the best Canadian team in Toronto. The British also plan to send a team this year.

**Air spotters** continue to organize. In the first phase, the chiefs of some 8,500 spotter posts in 25 states have almost all been chosen and most of the spotters picked. In the second phase, as reported last month, 11 more states will be added and more posts established in the states now covered.

At this stage, Air Defense officers do not plan to train spotters in identifying aircraft which often couldn't be seen anyhow in darkness or clouds when attack is most likely.

The watchers are supposed just to tell how many planes—one, several, or many; their altitude, whether high, low, very high, and very low, and their direction of flight.

If the spotters can recognize planes, that's (*Continued on page 66*)

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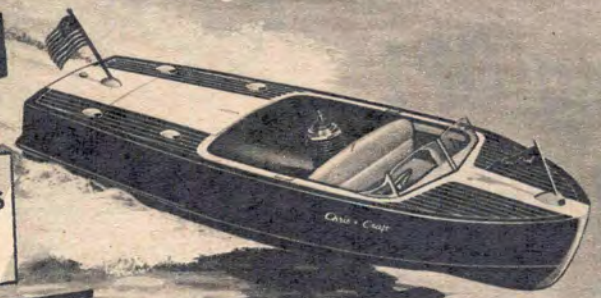

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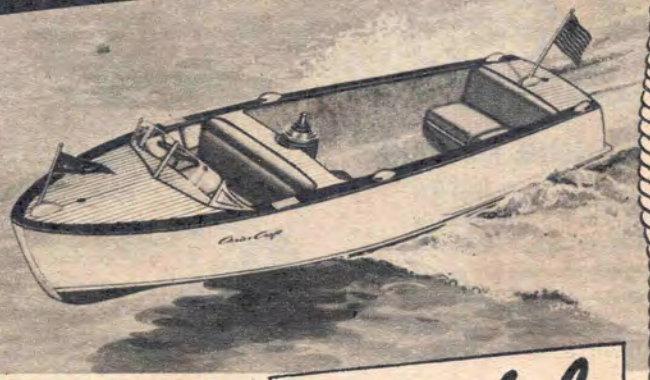

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AIR TRAILS
JUNE, 1951

**It's hard to believe that some men can enjoy falling through space testing experimental 'chutes**

# Space Men

■ It's rugged duty. In the summertime the thermometer often sticks at a hundred and twenty degrees, mechanics carry their tools in buckets of water to keep them cool enough to handle and pilots swab the controls of their planes with wet sponges for the same reason. The desert is an oven, the sun glares down, and high humidity generates a Turkish bath atmosphere that lasts for days.

Flying helps to take off some of the edge of the heat, but it is still not cool at 1500-2000 feet, where most routine parachute jumps are made. "We start warm," the jumpers say, "and we land hot." From early summer through late fall the desert floor is like a griddle.

Winter brings its own discomforts. At six o'clock in the morning, the beginning of the El Centro Naval Auxiliary Air Station, work day, it is dark. "Then we start cold and we land cold," the jumpers say. Until mid-morning, anyway. By that time the desert forgets about winter for a few hours and begins to warm up. The temperature range on such a day may span fifty degrees.

The jumpers are men of the U.S. Navy's Parachute Experimental Unit, located at this air station in the heart of California's Imperial Valley. Their job is to test and evaluate all types of parachutes and parachute gear under analysis by the Navy, and to do it the hard way—by taking to the air and bailing out with it.

Flyers are inclined to regard these men as slightly crazy, an attitude summed up not long ago by a jet pilot watching a jumper preparing to make his sixth jump of the day.

"I don't get it," he muttered, shaking his head. "These guys ask for it. You couldn't get me into a deal like that for a million dollars. Too risky." Then he climbed into his jet and took off for aerial gunnery runs, 20,000 feet up at 300-knots-plus.

He was right about these jumpers asking for the duty—all jumping is on a strictly volunteer basis—but wrong about the risk, at least according to these intrepid men themselves who

**By LYLE ROBERTSON**

jump, and the record sides with them. Their only injuries have been minor, bumps and bruises from poor landings and cuts and abrasions from shroud lines of opening 'chutes.

The experience of one jumper, however, was not only different but probably unique. He was very young and he liked to play the parachute version of "chicken," strictly against orders, with anyone else who did not mind living foolishly. On this occasion, he won. He waited so long before pulling the ripcord that his 'chute opened the instant he hit the ground. When an ambulance reached him, he was as stiff and black as a slab of coal. A half-hour later, though, he was on his feet again, intact. "Just one of those things," shrugs the medical officer.

Such taboo antics are strictly out of place in the mission of the Unit, for the program at El Centro is one of scientific research and development, and the men who jump look at their part in it from the same point of view. The only trait that sets them indelibly apart from other Unit personnel, and from most other men anywhere, is that they would rather jump than do anything else.

In this respect they are a select company in which age, rate or rank does not count. Some of the jumpers are officers and some are enlisted men. Some are young and some are not. The only common denominator is a love of jumping, and it is the all-important one.

Stormy, a quiet, gray-haired man with gentle eyes, reflects it in his stock self-introduction. "I'm a jumper," he says on meeting you for the first time. "My name's Stormy." He has bailed out of everything from hot air balloons to jets. He began jumping in 1933 as a weekend hobby, buying his own parachutes and bumming rides aloft so he could bail out. He served in the Pacific during World War II and transferred back to 'chutes as soon as he could afterwards.

Frazier shows it in another way. Lackadaisical and generally disinterested in anything that takes place on the ground, he comes alive on every jump. A full-blooded Indian, he handles himself like a ballet dancer and lands like a hawk—arms curved, fingers spread like talons, feet reaching for the ground. He seldom tumbles and rolls as most of them do, but once with the cameras of a photographic crew on him he landed as awkwardly as a first-timer six jumps in a row. "Stage fright," he explains.

Chubby, a lieutenant and wartime blimp pilot in the Mediterranean theater, reveals the same spark when he tells why he jumps. "There's no special reason. It's just a wonderful feeling, that's all. There's nobody else in the world but you. You're completely alone. There's no sound, no nothing. You're free, absolutely free. You hate to pull the ring and end it."

Perhaps he says all that can be said. "It's sort of hard to explain," most of the men say, and fall silent. They are the ones who are made for the job. Station files tell of other men who made one jump, or two, or six, and then turned in their 'chutes for the last time. Jumping was not for them. They knew it as clearly as these men who love to jump know that they are completely at home in a world of thin air and creamy 'chute cloth.

They do not make all the jumps which are logged at the Unit, only the live ones. Before they buckle on the harness of an experimental 'chute or any other piece of gear, it has been thoroughly tested by the hard-rubber jumpers.

These are dummy torsos weighing two hundred pounds, dropped from a special hatch in one of the Unit's planes and carrying parachutes triggered by static lines that pull the ripcord in the same way that

If jumper lands in water, 'chute canopy will drag him under. This

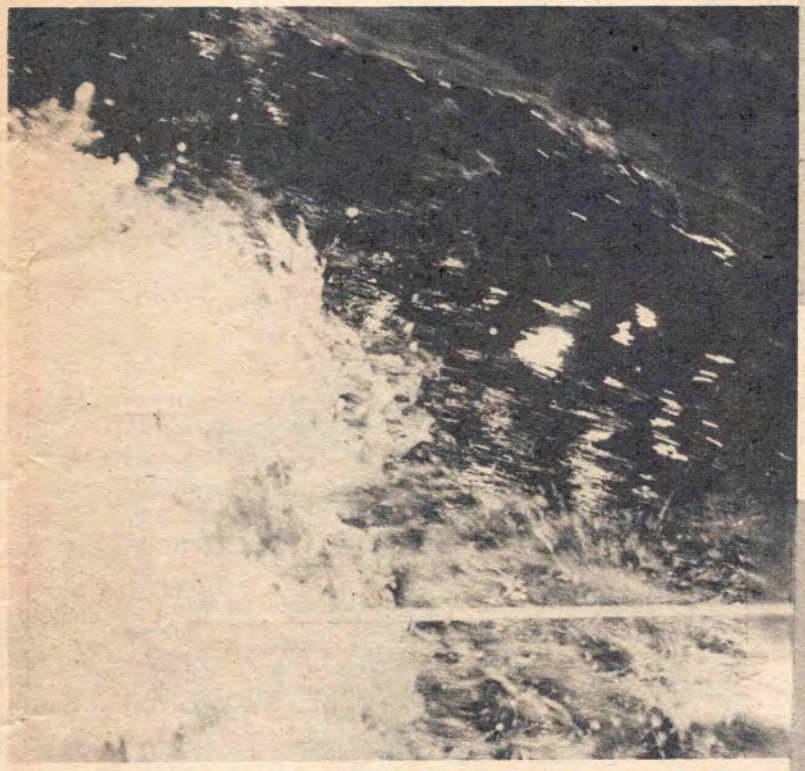
a paratrooper's 'chute is tripped. They're the jumpers that catch most of the streamers—'chutes which fail to open. All of them are used long and hard, bouncing as high as a housetop when something goes wrong and always ready to do it all over again.

Some of them are equipped with automatic radio transmitters which send a steady stream of data to a ground crew, reporting rate of descent, stress, amount of opening shock and other variables important to designers, engineers and technicians. Only after a 'chute has turned in a satisfactory record of dummy-drop performance is it tested by live drops, and the jumper always wears at least one safety 'chute of proven design, just in case.

The Unit not only works with civilian manufacturers in designing new and better equipment for

flyers, but also initiates projects on its own. One of them is the extended-skirt parachute, developed at the El Centro station after World War II. It has proved so successful, especially in high-speed bailouts, that it may replace previous types as standard equipment. Jumpers at the station have used it at speeds up to 444 miles per hour, where the jolt of merely hitting the air can tear off a man's shoes and helmet, and tests with dummies at much higher speeds are under way.

Pilots know that every jump made at El Centro adds to their chances of a safe landing at some possible future time when their lives may hang by

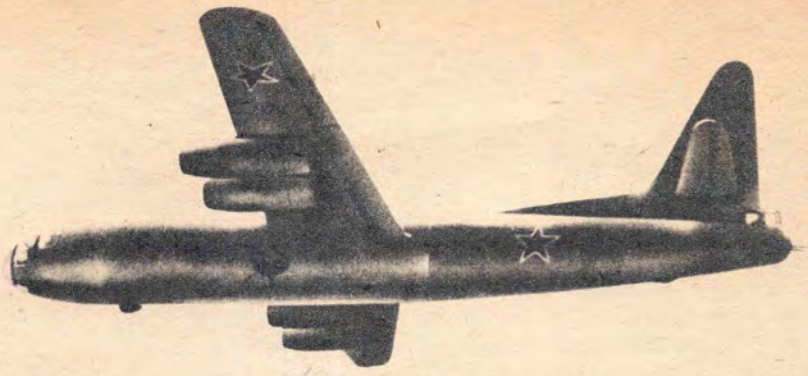


drag test determines how quickly canopy can be freed from harness.

shroud lines and a few yards of canopy cloth. Those who already have had to bail out to save their necks realize more keenly than anyone else just how important this Unit is.

"It was about two o'clock one morning last spring," the lieutenant-commander said. He sat at the half-block-long bar of the Officers Club, the station's handsome and well-appointed social oasis. "We were on night fighter maneuvers, out over the desert. I was at nine thousand feet when my engine began to chew itself to pieces. I couldn't stop it. I rode her down to two thousand, then gave up and hit the silk. An emergency landing in the dark would have been suicide—and frankly, I was wondering if a bailout might be, too. I found out. I came down without a scratch." He was silent a (*Continued on page* 61)

A number of experimental chutes are tested at El Centro, as the one above, with an "extended skirt" developed by the Unit for high-speed bailout. Note in the lower picture that the jumper has his hands on the risers. Pulling himself up on them he reduces impact force against ground and thus cushions shock.



# Russia—Colossus of the Air PART II

**Why are the Soviets suddenly placing so much stress on Naval Aviation? Is the Soviet Air Force losing ground to the carrier-battleship crowd?**

By "ARGUS"

■ Visualize an aerial armada of between 15,000 and 20,000 airplanes backed up by the greatest state-sponsored research and productive effort known to man and you have the Soviet Air Force and Russia's accelerated aviation program.

In a preceding article we examined the technical development of the Russians, the schools that produce the engineers and some of the accomplishments of the USSR in the fields of airborne weapons, powerplants and communication. Now let us consider the basic organization and functions of the Soviet Air Force and Naval aviation.

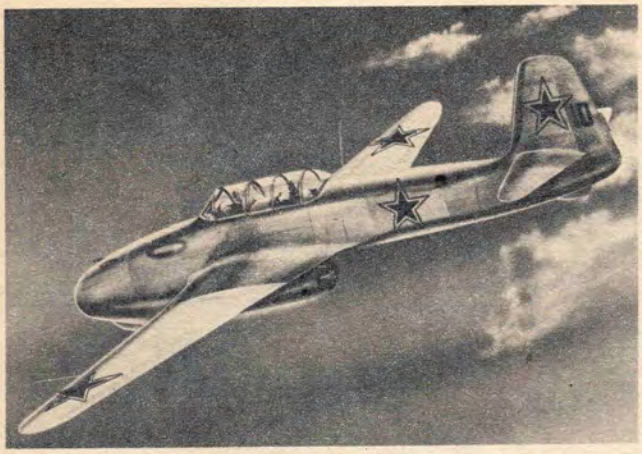
All Soviet military air forces, with the exception of the Naval Air Arm, are administered in the first place from the War Ministry under Marshal Vassilevski. Closer control is exercised by the Commander-in-Chief of the Soviet Air Force, Colonel-General Zhigarev, who co-ordinates the activities of the two main air force commands in the East and in the West, Russian air strength being split between the Western and Eastern "spheres of influence," both of which are fully backed by separate production and raw material resources.

Further sub-divisions are the Military District Air Armies, which break down into Fighter Defense, Army Co-operation, and Heavy Air Corps. These Corps consist of a number of Air Regiments which, in the case of a Fighter Regiment equipped with piston-engined aircraft, include four squadrons each having three flights of four aircraft. Regiment and squadron strength for jet fighters, bombers and other types probably differ in detail, but their basic structure remains the same.

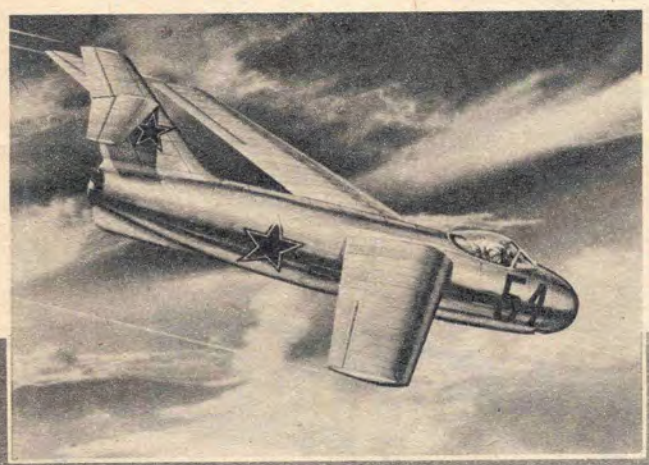
From the top direction downwards, the air forces function primarily as an auxiliary of the all-important Red Army. The recent reduction in appropriations (by 800,000,000 roubles) for the Soviet Army, on which depends the Air Force, and the transference of this amount to the Naval Air Arm in order that the latter could take over all strategic bombing units, together with certain bomber bases, from the S.A.F., indicate that this policy is being followed tenaciously and, perhaps, correctly, in view of the highly efficient way in which the Soviet advance was assisted by tactical air support during the latter half of World War II.

This inter-relationship between the Soviet Army and Air Force, although well known, has tended to be overshadowed recently by the threat of Russian atomic weapons carried by a strong strategic bombing force, an opinion fostered by the appearance of large quantities of the Tupolev Tu-4 (Russian production version of the Boeing B-29). However, the transference of these aircraft to Naval units strengthens our opinion that the real danger from the Soviet Air Force is, and will remain, its ability to bludgeon a way ahead of Red ground formations. The S.A.F. is, in fact, a tactical Air Force in the true sense, and Atlantic Pact air rearmament should be conducted primarily to neutralize this close support role and to give stronger backing to our own feeble ground forces.

Hitherto, Naval Aviation has formed only a minor part of the total Soviet air strength, and during the war only a small proportion of the Naval aircraft were operating over the sea. All but a few squadrons



Above: Russia's first two two-seater jet trainer. Derived from the Yak-15, it differs from it only in having a second cockpit added for the trainee. Below: A later fighter than the MiG-15 is the Lavochkin La-17; somewhat larger and heavier, it has a shoulder mounted wing with approximately 30° sweepback. The maximum speed is around 630 mph. Opposite page: Four-jet medium bomber believed to be designated Il-16, designed by Serge Ilyushin. Engines are suspended on streamlined pylons as in case of our B-47.



were land-based, the Russians not then possessing any aircraft carriers, and they were organized under separate Commands attached respectively to the Black Sea, White Sea, Baltic and Far Eastern Fleets, and the Caspian Flotilla. Except for the flying-boat units, equipped for the most part with Catalinas, aircraft were the same as those used by the bulk of the Soviet Air Force.

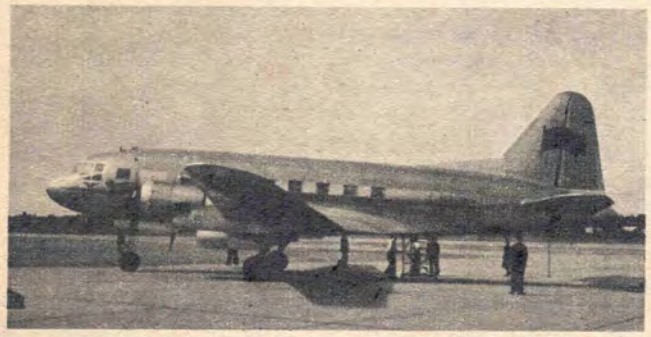
Early last year naval affairs in the Soviet Union took a new turn when a Navy Ministry, separate from the War Ministry, was formed under Admiral I. S. Yumashev as Navy Minister. This change confirmed recurring reports that the Soviet Navy is taking on a new lease of life. A big, modernized submarine fleet, already consisting of 350-400 underwater craft of varying sizes is being formed and new construction of capital ships is under way, the first units of which have already been delivered.

These new battleships are known as the *Sojus* (Union) Class, and those completed include the *Sojus*, the *Sovietski*, the *Strana Sovietov* and the *Belo Russia*. All these capital ships are, at the present time, based in Arctic waters—they have not risked observation by passing through the Baltic narrows—and reports indicate that they are fitted for firing long-range rockets of the V-2 type.

Naval aviation is certainly playing an important part in this expansion, and the first of three large aircraft carriers (of 20, 23, and 25,000 tons) is known to have been completed recently. The types of aircraft to be carried by these (*Continued on page* 69)

Dubbed the Russian Thunderjet because of its resemblance to the Republic F-84 (tho smaller), this sleek fighter is designated Yak-17.

A Boeing KC-97A Stratofreighter in its new role as an aerial tanker refueling a B-50D bomber. This latest addition to its duties increases the versatility of the large double-deck airplane that can also be put in service as a hospital plane or as a heavy duty freighter.

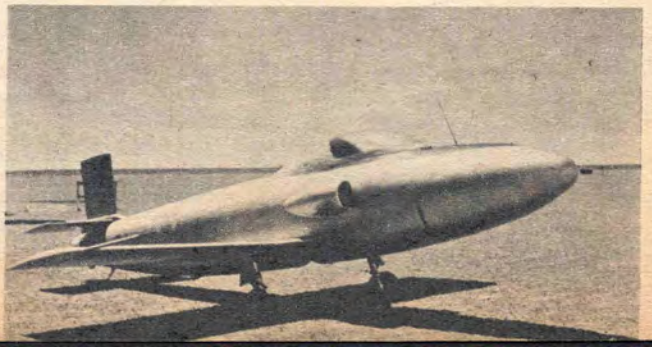


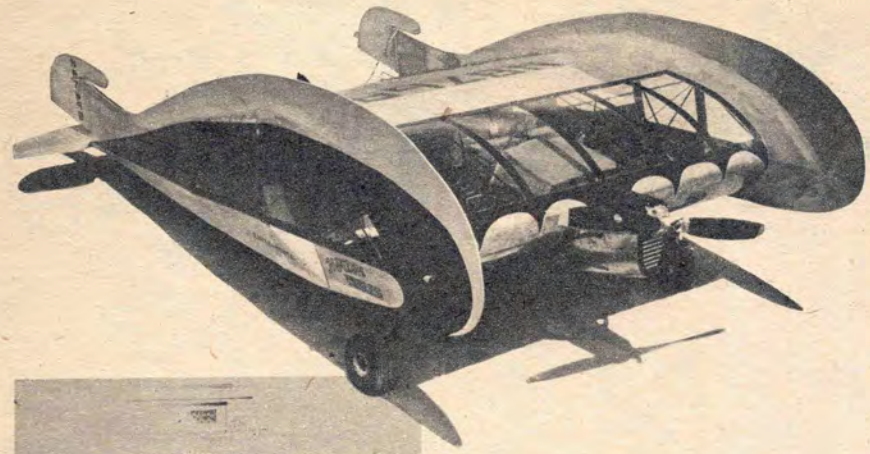
Newest version of Il-12, a Russian airliner, carries 27-32 passengers. Extensively used by Soviet Aeroflot airline as well by Czech C.S.A. and Polish L.O.T. carriers. The span is 104 ft. Speed 200 mph.

# Development Highlights

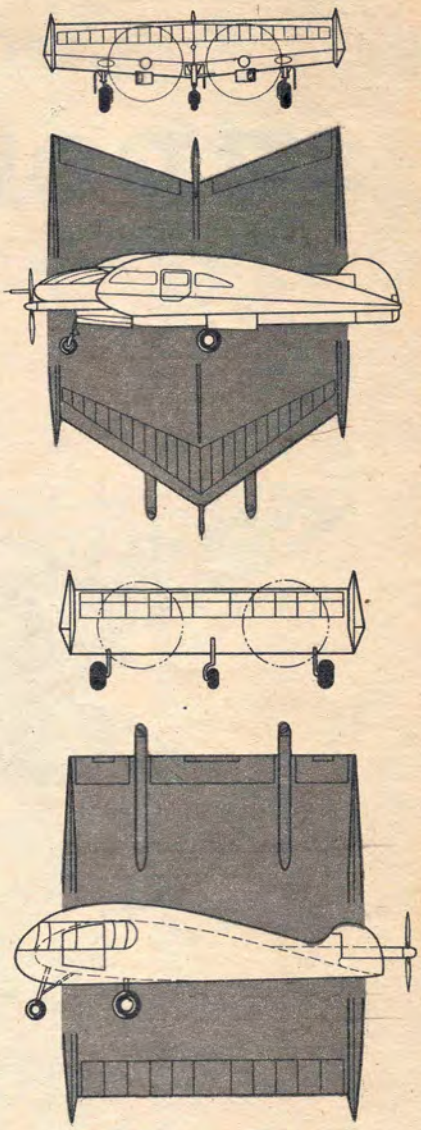
Research farm plane for crop dusting and spraying designed and built at Texas A & M University under direction of Fred Weick of Ercoupe fame. 225 hp Continental, high-lift wing, lands at 37 mph.

Project "C". Australia's first jet plane, built by Government Aircraft Factory: high-speed target drone powered by 1100 lb. thrust engine. Span 19 ft. Craft is controlled from ground or air by radio.





Horton prototype and proposed Flying auto. The three-views show variations on theme.



# Horton Wingless Plane

■ You would not think that it could fly, but actually the wingless craft above got off the ground during fast taxiing test in Florida. Designed and built by William E. Horton, aircraft and automotive engineer, this prototype is 12 ft. wide and 22½ ft. long. Horton claims that flight is made possible by "sealing velocity pressure" by means of large wingtip plates. These, he says, considerably reduce tip vortex and effectively control boundary layer of the narrow-span wing, giving it a high lift factor. Other advantages claimed for the design are simple construction and easy adaptability as a "roadable." The original got off the ground and attained an altitude of 10 ft. at Winter Haven, Fla., but extreme control sensitivity convinced Horton more work was needed. On a subsequent test the strange craft was damaged when a tire blew during high-speed taxiing. Horton is now on the West Coast and an engineer with North American Aviation. In his spare time he is designing a twin-engine wingless plane. Construction is to be supervised by an associate, Wallace Johnson. Horton estimates that the new design will have a speed of 200 mph, carry 12 passengers. He envisions a 4-place Wingless Flying Auto and a fighter-bomber.

Hiller "Hornet" twin ram-jet helicopter (right) which is expected to sell for less than $5,000. Available with enclosed cabin or as an open utility model as shown. Rotor blades fold allowing storage in average garage. Use of ram jet eliminates torque and makes structure extremely simple. Copter has only two controls, no pedals. Below: English Electric Canberra which spanned the ocean in 4 hrs. 40 min. puts on low-flying demonstration at Glenn L. Martin plant, Baltimore, Md. Pilot was Wing Commander Roland Beamont of RAF.

# supersonic flying

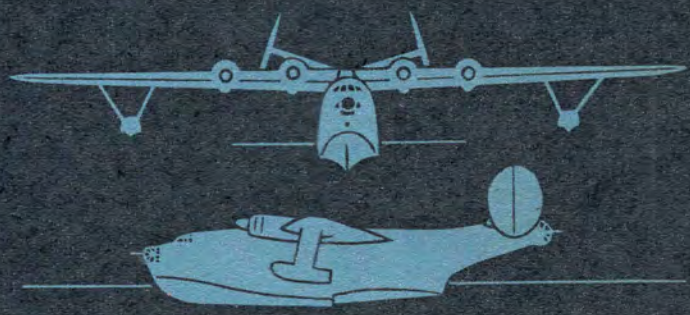
■ For many years the flying boat was a designer's orphan constantly losing the race for speed and utility with the landplane until it looked as though it was about to be shelved for all time. In a world where transonic and supersonic speeds were becoming a foregone conclusion, the flying boat plodded along well below 200 mph. While landplanes' shapes were carefully nursed into a supersonic and drag-reducing slimness, the seaplane was still being designed as a marine boat that flew, instead of an airplane which used water surfaces for take-off and landing. The hull was large and bulky because the aircraft was primarily designed for long range, large load capacity and seaworthiness, and the general configuration followed boat practices. Consequently, drag on the water and in the air was high and many of the planes had bad water porpoising characteristics on take-off, especially if the length-to-beam ratio of the hull was low. It was obvious, that in order to obtain speed, the hull, which had the same function as the fuselage, required streamlining. The landplane arrives at its slimness through the use of a landing gear, while the seaplane's alighting gear is its belly; thus the difference in bulk between the two types of aircraft. Nevertheless, N.A.C.A., Consolidated-Vultee and Martin started experimenting with slimmer hulls, gradually increasing the fineness ratio (length-to-beam) and found that it not only improved the flying boat's aerodynamic efficiency but also made it more stable on water and even improved its take-off characteristics. At the same time, the entire plane was cleaned up by streamlining engine installation, doing away with different protuberances, and a general slicking up.

# boats

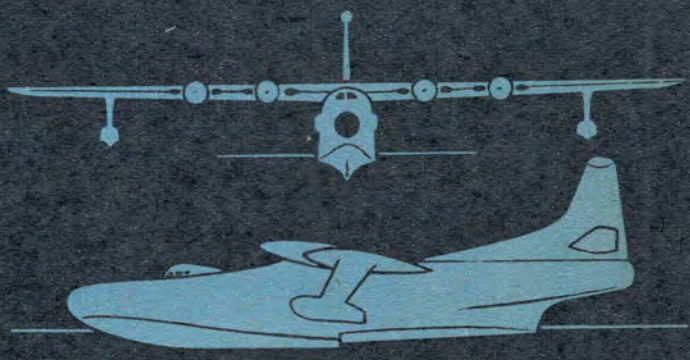

**Drawings by FRANK TINSLEY**

As a result of these findings Convair launched the design of a really fast flying boat powered by turbo-prop engines, which fortunately became a reality just in time. Known as the XP5Y-1 or R3Y-1, it proved the point by unofficially establishing a speed record for flying boats, in the vicinity of 400 mph. What is the next step? Obviously, from the designer's standpoint, the supersonic flying boat. It may not come today or tomorrow, but in the light of what the hull boys know now, it is entirely feasible. Already Convair, sponsored by the Navy, is working on Project Skate, which may become the first supersonic flying boat. It undoubtedly will be powered with jet or turbo-prop engines, will have a long slim hull with a fineness ratio of at least ten, and swept-back thin wing, giving new lease on life to the flying boat type.

NC-4, 1918. This famous transoceanic flying boat was a nightmare from the standpoint of drag, by today's thinking. However, its hull offered less resistance to air than the wings, struts, wires and engines, and represented, basically, the formula which today's designers are striving for. Hull length was 45 ft., the ship's beam 10 ft.



MARTIN MARS, 1942. Twenty-four years later with advent of full-cantilever wings and streamlined engine nacelles, designers were forced to concentrate on the problem of hull drag reduction as long range and large payloads swelled the hull size. Increased length-to-beam ratio began to show results here. This is earlier version of Mars.



CONVAIR R3Y-1, 1950. Latest fashion in flying boat design. Here, further streamlining was achieved by using partially submerged turbo-prop powerplants. The hull is 100 ft. long and has a 10 ft. beam giving the aircraft a "fineness" ratio of ten. A smaller ship, the XP5M-1 by Glenn L. Martin, is also being used to study hull design problems.

PROJECT SKATE. A preview of what the future holds for the flying boat. Still in design stage at Convair, though models have undergone water towing tests and in near future a dynamically similar radio-controlled model will be tested in flight. Convair firmly believes that a supersonic flying boat is feasible. The Skate may prove it.


Photo courtesy American Airlines

**Everyone talks about the glamorous side of this job and soft-pedals the hard work . . . yet the rewards are many**

# Airline Hostess

*Dear Air Trails,*

*Would you please send me some material on airline hostesses, as I am much interested in this subject as a career. Thank you.*

*Respectfully yours,*
*Jean Price.*

*Ypsilanti, Mich.*

Dear Jean:

So you are interested in joining the more than 4,000 girls serving as hostesses on the airlines of America.

First, Jean, you should know the type of girl the airlines want. She need be no ravishing beauty; it matters not whether she is blonde or brunette. But she must possess certain definite attributes. Suppose we ask a girl who passed the tests six years ago. She acted as stewardess three years, then climbed to a chief's job. For the last three years she has been helping select new girls, as well as directing a bevy of stewardesses flying to the four points of the compass from Los Angeles International Airport, including the romantic Hawaiian run.

"Our composite stewardess," you learn from United Airlines' Terry O'Brien, "must be between 21 and 26 years old. She stands in her stocking feet somewhere between five feet two and five feet seven inches tall. She tips the scales at 135 pounds maximum, preferably several pounds less. She has had two years of college, or one college year plus a year in business, or a registered nurse's degree. Once all the girls were required to be nurses, but the rule dropped out during the war when nurses were needed elsewhere.

"Actually whether she lands a job depends largely upon subjective factors: appearance, maturity and personality. She should be an extrovert, have a pleasing voice and be able to talk with people easily. She needn't resemble Lana Turner, but a smile helps."

If you measure up to these specifications, Jean, write a letter to the personnel director of the airline you choose. He probably will ask you to visit the nearest large city served by his line. There you will be given a sort of entrance examination. The folks who may hire you want a good deal of information. One test will try to make certain you can grasp the elements of everyday problems and reason to logical solutions. Another will probe your emotional stability to find out whether you are a well-balanced individual. If you pass these, a personal interview will follow. Your records will be checked. Then a second interview. You are told about uniform requirements, schedules flown, pay rates. If you are still interested and the interviewers approve, you're in, but only part way. Now the superintendent of stewardesses conducts a final interview, and you undergo a physical examination.

Comes now your schooling. Let's say you are flown to Cheyenne, Wyo., for United's five-week course. You'll learn things about flying you never dreamed necessary to haul people, express and mail. Schedules of your own and other airlines, airmail routes, excess baggage tickets, legal responsibilities, smoking, etiquette. You'll learn that LAX means Los Angeles, and LGA for LaGuardia means New York. You'll learn how to minister to earache, airsickness, heart conditions, oxygen want; deliver a baby, and give a hypodermic.

Airlines make few mistakes leading to trouble, Jean. That's why the instructors take such pains to teach you how to work efficiently and neatly. Don't leave a sweater draped across your bureau. You

(*Continued on page* 58)

# AIR ADVENTURERS CLUB

## THE AIRMAN'S CREED

I believe that aviation, founded in America, is the protection of America and of the free world;

I know that the skill of many Americans will be needed to keep our aviation supreme, and that such skill can be won only by much work and study;

I understand that for every one flying there must be ten busy on the ground and for every one on the ground, there must be more to see that aviation gets the help it needs;

I intend to be one of those people, whether flying, in ground duties, or among the helping many;

I pledge my best effort to aviation, never to stop learning through the years, so that I may render the most service wherever my abilities and opportunities may place me.


■ A step-by-step program, long needed in aviation, is fast developing in the Air Adventurers series of work manuals which embody the best features from years of organizing experience.

In airplane model building especially, many try to start at too advanced a stage. So they fail and lose interest. Those who succeed still don't know aviation's ABCs.

Aeromodeling is a big activity. More than 2 million do it. But far greater numbers of young people are turned backwards by "horse opera" to play cowboy, rather than look into the future and run to meet the coming American "sonic air age."

The A-A plan, for young or old, is to begin at the beginning and carry each member by easy (but not too easy) steps toward a well-rounded understanding both of aeronautical theory and practical flying. Thrilling interest, personal advancement, and fun are offered all in one package.

The program is in 4 phases which all go forward together:

1. *A-A Clubs.* It's easy to form a local Flight of 4 members or more or a Squadron of not less than 12, for teamwork. A-A manuals are written so that a lone member can do the work and advance. But it's better to share the work and fun with others of like mind.

*An aeromodeler or student of aviation by himself can expect little attention from pilots and airport people. But a well-run A-A unit should get plenty of cooperation in seeing real airplanes.*

The A-A work may be done within (*Continued on page* 67)

**AGE LIMITS: There are no minimum or maximum age limitations on Air Adventurers membership.**

**MAIL TO: Air Adventurers, c/o Air Trails, 304 East 45th Street, New York 17, N. Y. Print all information required on the application; sign where indicated. *At same time,* print your name and address on both labels and mail with coupon.**

**I hereby apply for membership in the Air Adventurers Club and promise to do everything in my power to uphold the principles of the organization and work for the advancement of American aviation. I enclose 25¢ in well wrapped coins for my credentials ☐; 50¢ for credentials *and pin* ☐—(indicate which).**

.....
(Name—print)

.....
(Street address—print)

.....
(City—print) (Zone) (State)

..... .....
(Age) (Sign here)

(AT651)

.....
(Name—print)

.....
(Address—print)

.....
(City, Zone, State—print)

*Print* your name & address on both these forms and mail inside the envelope with your application form; they will be used as labels for mailing

.....
(Name—print)

.....
(Address—print)

.....
(City, Zone, State—print)

# AIR ADVENTURERS POWER MODEL #3

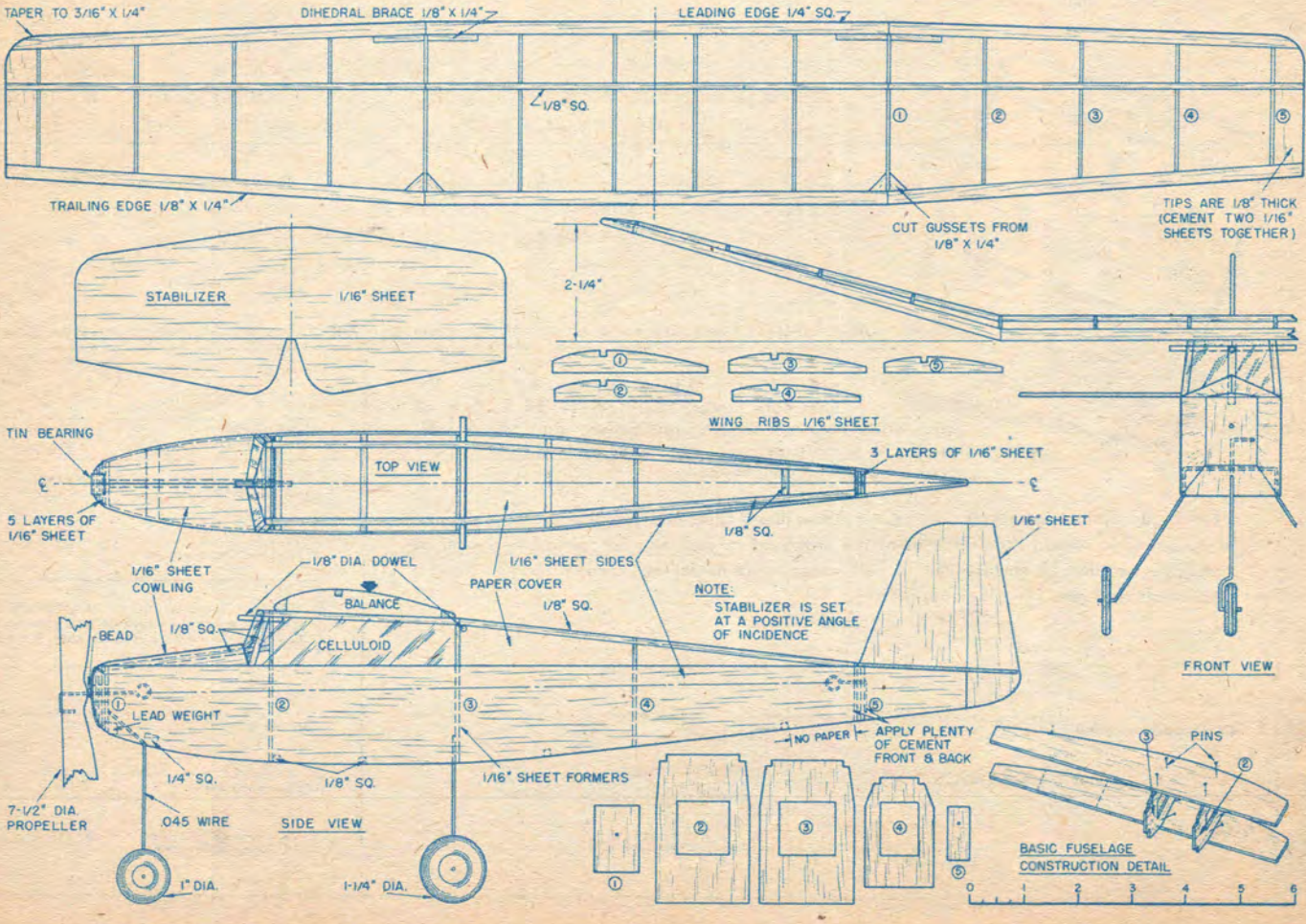
**Realistic rubber-powered model for Club members looks like real plane**

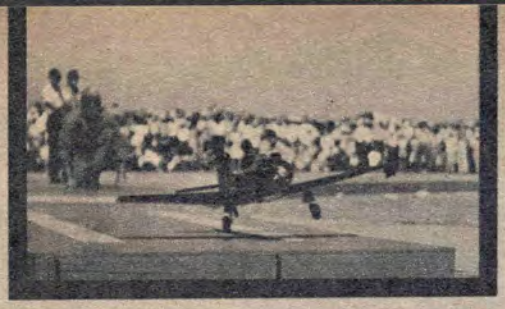
■ We feel that our Air Adventurer followers should have progressed by now to the point where they can tackle a model quite different, and considerably more advanced, than whose we have described before. Not that the model we'll build this month is very difficult; it does, however, take longer to finish as there are quite a few more bits and pieces to fit in.

Actually, construction is really simple, and almost every part is made similarly to parts on the preceding models of this series. The ship has been designed somewhat like a gas model, and should be considered a logical link between the rubber-powered planes that have already been presented, and the gas models that will follow. We have a fully formed fuselage, built-up wing with tip dihedral, and as a concession to realism, a tricycle landing gear.

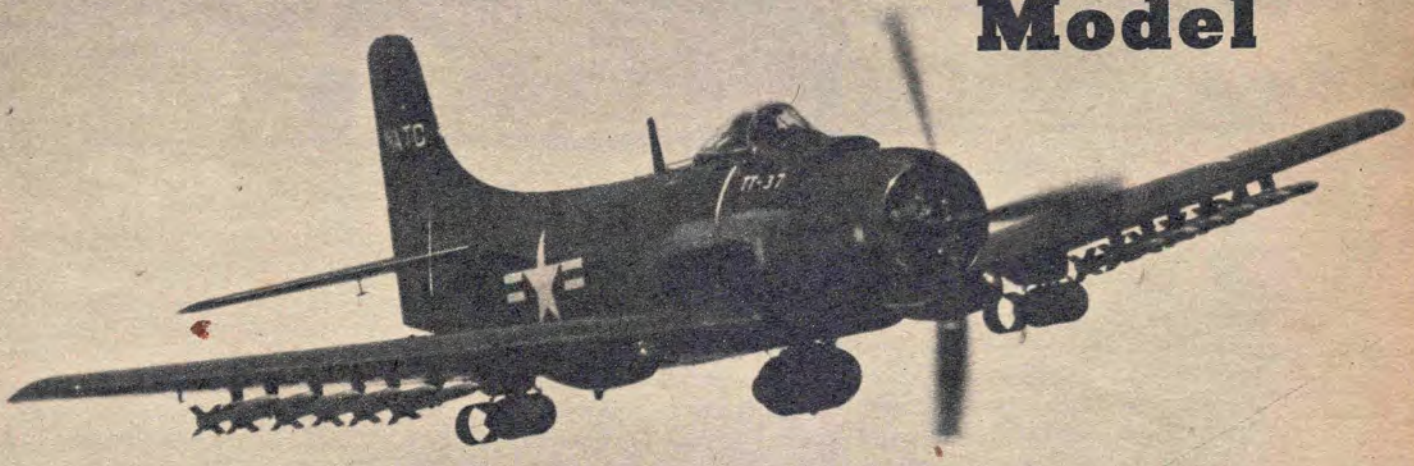
Since the fuselage is built on a step-by-step system, let's start it first, so the preliminary joints can be cemented and drying. Cut the two sides from your 36″ x 3″ x 1/16″ soft balsa sheet and make sure they are identical in shape and length. Lay them over the fuselage side view and mark the locations of the vertical fuselage members or formers on each with a soft pencil.

Next, cut out formers 2 and 3—be sure (*Continued on page* 62)





# Navy Carrier Model




**National Championship Winner for new Navy model event was this Douglas AD2 Skyraider**

**By S. CALHOUN SMITH**

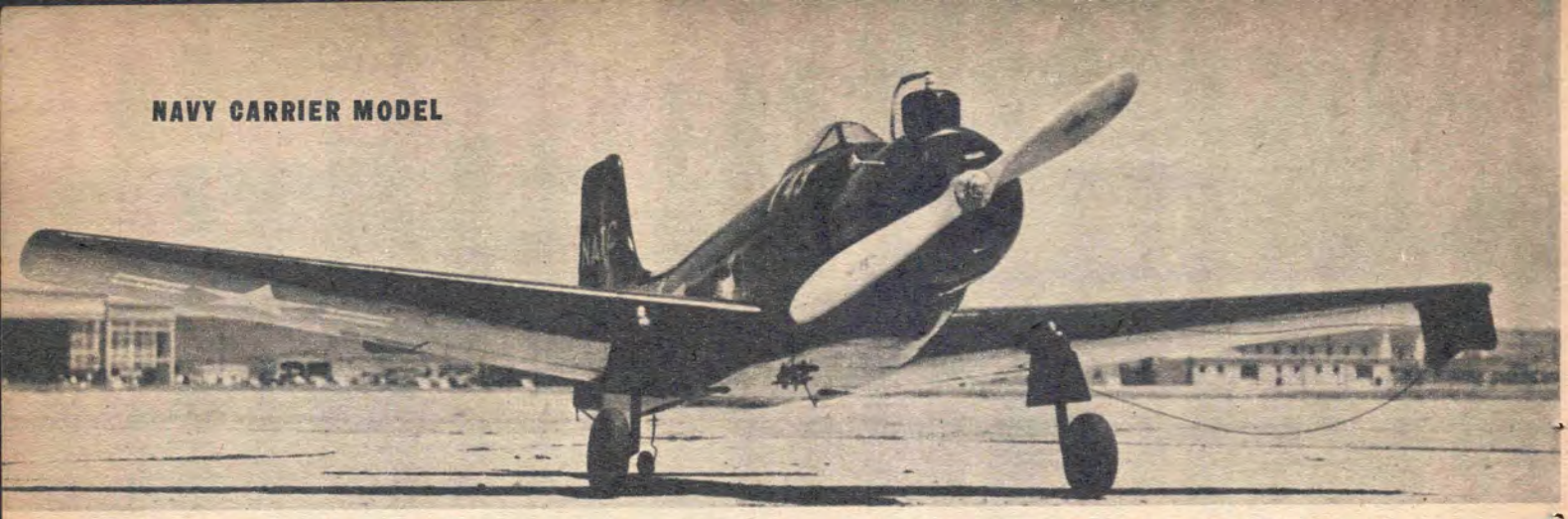

■ Able descendant of the Northrop and Douglas dive bombers, the AD series has already proven its abilities in the Korean War. Designed during World War II, the first Skyraider was flown in 1945. However, none of the airplanes saw action at that time. Serving in the so-called interim Navy, the Skyraider fulfilled many different duties in addition to being the attack bomber mainstay.

Various modifications outfit the Skyraider for chemical warfare, mine laying, radar picket and patrol, target towing and photo recon. Serving in its prime duty as attack bomber, the Skyraider can carry a variety of firepower including bombs, rockets and one torpedo in addition to its two standard 20-mm wing guns.

One of the biggest single-engined airplanes to operate from carriers, the Skyraider has a wingspan of 50 ft. and a length of 39 ft. Empty weight is over 10,000 lbs., and payload is three tons. Power is the big Wright R-3350 series engine delivering 2500 hp. swinging a four bladed 13½ ft. diameter Aeroproducts propeller. The Skyraider's bigness even extends to its performance; it's in the 400 mph class, has excellent take-off performance and a high rate of climb. Normal cruising range is 1,500 miles, but this can be doubled by using auxiliary fuel tanks in place of bombs.

Big and powerful are the two best adjectives to describe the Skyraider. Its firepower is equal to the broadside from

## NAVY CARRIER MODEL



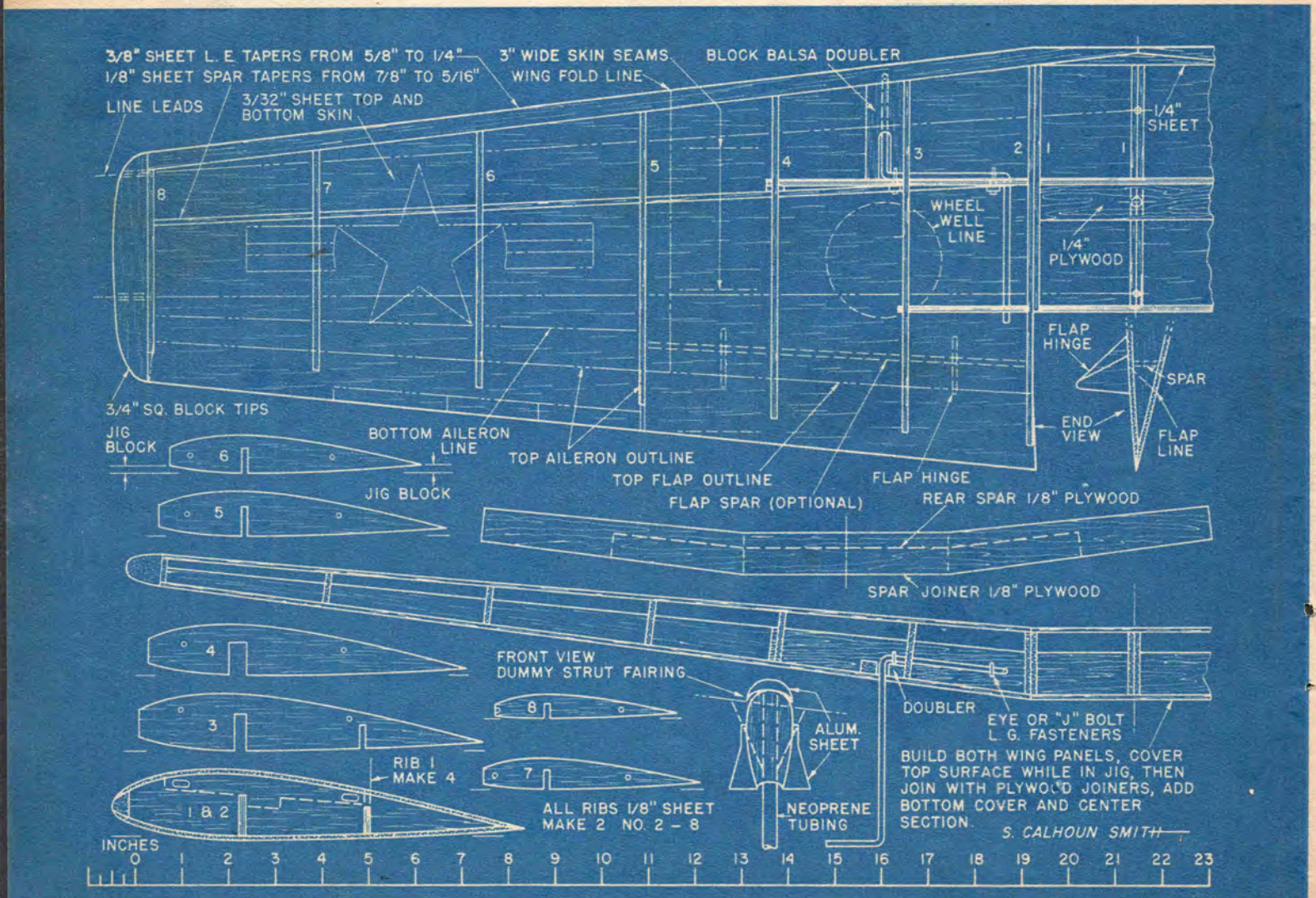
Cal Smith's magnificent Skyraider model was first to fly successfully from a miniature aircraft carrier and capture top National meet honors.

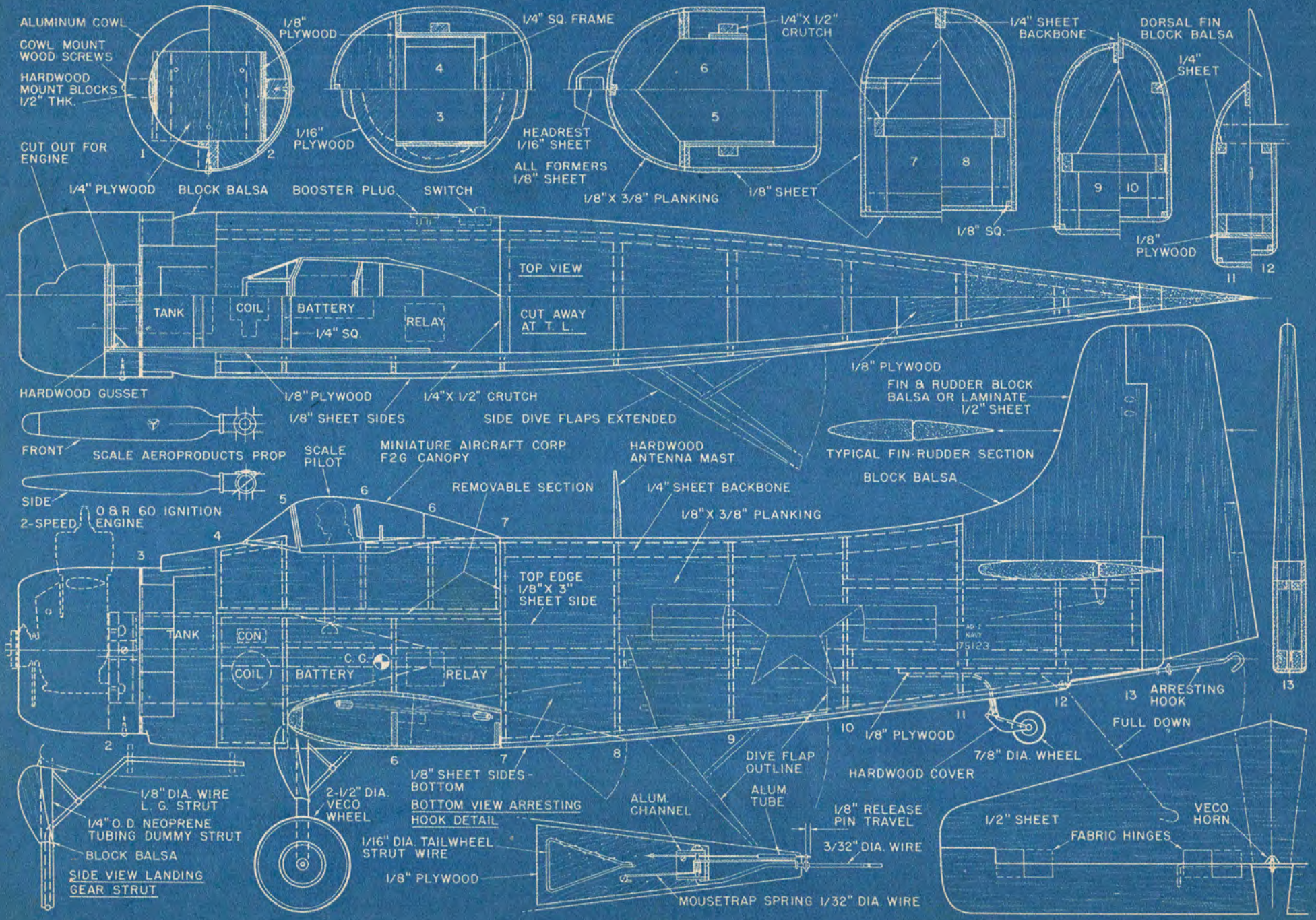
a light cruiser, and its performance in the Korean War has earned it a reputation as a top-notch ground support aircraft.

The AD series modifications total more than 22 different versions of the basic Skyraider. The number series now includes AD-1-2-3 and 4. Latest development is the new A2D turbo-prop Skyshark which is very similiar in appearance to the Skyraider but actually is a completely new, independent design.

With this big plane background, the Skyraider is a natural choice for a control-line model. The ship makes an excellent flying scale job and our model was developed especially for the Navy Carrier Event held at the 1950 Nationals. We were fortunate enough to take 1st place in that event with this model. The special gadgets for the carrier event will be described in another article. This deals with the model construction alone.

Our Skyraider was scaled at 7/8 in. = 1 ft. directly from 3-view drawings distributed by the U.S. Navy. Wingspan is 43¾ in. which is just under the 44 in. maximum allowed by the Navy Carrier Event rules. Wing area is 308 sq. in., weight is 3½ lbs. Power is O&R 60 front rotary ignition 2-speed engine. Top (*Continued on page 76*)




ALUMINUM COWL
COWL MOUNT WOOD SCREWS
HARDWOOD MOUNT BLOCKS 1/2" THK.
1/8" PLYWOOD
1/4" SQ. FRAME
1/16" PLYWOOD
HEADREST 1/16" SHEET
ALL FORMERS 1/8" SHEET
1/4"X 1/2" CRUTCH
1/4" SHEET BACKBONE
DORSAL FIN BLOCK BALSA
1/4" SHEET
CUT OUT FOR ENGINE
1/4" PLYWOOD
BLOCK BALSA
BOOSTER PLUG
SWITCH
1/8"X 3/8" PLANKING
1/8" SHEET
1/8" SQ.
1/8" PLYWOOD
TOP VIEW
TANK
COIL
BATTERY
1/4" SQ.
RELAY
CUT AWAY AT T. L.
HARDWOOD GUSSET
1/8" PLYWOOD
1/8" SHEET SIDES
1/4"X 1/2" CRUTCH
SIDE DIVE FLAPS EXTENDED
1/8" PLYWOOD
FIN & RUDDER BLOCK BALSA OR LAMINATE 1/2" SHEET
FRONT
SCALE AEROPRODUCTS PROP
SCALE PILOT
MINIATURE AIRCRAFT CORP F2G CANOPY
HARDWOOD ANTENNA MAST
TYPICAL FIN-RUDDER SECTION
BLOCK BALSA
SIDE
2-SPEED
O&R 60 IGNITION ENGINE
REMOVABLE SECTION
1/4" SHEET BACKBONE
1/8"X 3/8" PLANKING
TOP EDGE 1/8"X 3" SHEET SIDE
TANK
CON.
COIL
C.G.
BATTERY
RELAY
ARRESTING HOOK
FULL DOWN
1/8" PLYWOOD
7/8" DIA. WHEEL
HARDWOOD COVER
DIVE FLAP OUTLINE
1/8" SHEET SIDES - BOTTOM
BOTTOM VIEW ARRESTING HOOK DETAIL
ALUM. CHANNEL
ALUM. TUBE
1/8" RELEASE PIN TRAVEL
3/32" DIA. WIRE
1/8" DIA. WIRE L. G. STRUT
1/4" O.D. NEOPRENE TUBING DUMMY STRUT
BLOCK BALSA
SIDE VIEW LANDING GEAR STRUT
2-1/2" DIA. VECO WHEEL
1/16" DIA. TAILWHEEL STRUT WIRE
1/8" PLYWOOD
MOUSETRAP SPRING 1/32" DIA. WIRE
1/2" SHEET
FABRIC HINGES
VECO HORN

Veterans of Korean war now convalescent patients at Tokyo Army Hospital build model planes as an important part of their rehabilitation program. Pvt. Eugene D. Bradley, Bonifax, Fla. (left), and S/Sgt. James K. Edwards, Portsmouth, Va., build Bonanza and Corsair with help of WAC therapist.

# Dope Can

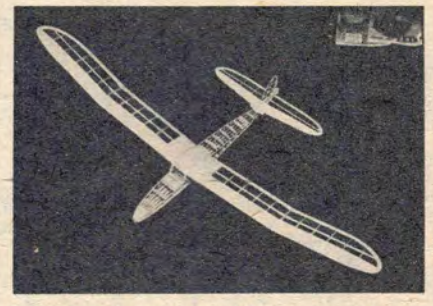
## News, Views, Comments and Photos from Model Clubs and Enthusiasts in America and Overseas; AT Pays $5 Per for all Photos Used

■ Even though there is frost on the ground as this is written, by the time this bit reaches you fair winds and fine weather will be the order of the day. And that grand combination means the hibernating modeler will have emerged from his winter lair—the cellar, the attic or the garage—and be hard at work snaring an elusive thermal or seeking a smooth flying circle.

The month of May means contests, of course, but before we get into that subject, we think it only fair to welcome into the open air the I-fly-for-fun modeler, the sport or "Sunday" flyer. He is the chap who rarely gets mentioned, yet he comprises 90% of the enthusiasts. Consider it for a moment: for every flyer you run across in your contest travels, or in your club activities there are at least nine who build by themselves for the most part and fly when they please, where they please and for their own pleasure.

Who knows, perhaps the "free lance" flyer is the one who has the most fun. Americans are noted for their tremendous energies in the organizational field—perhaps we need a little less formal flying and more activity "just for the fun of it." Certainly we should not overlook the great contribution the Sunday flyer makes to the sport. He buys the bulk of the kits and engines, the supplies and accessories, which means that quantity purchasing brings the (*Continued on page* 78)

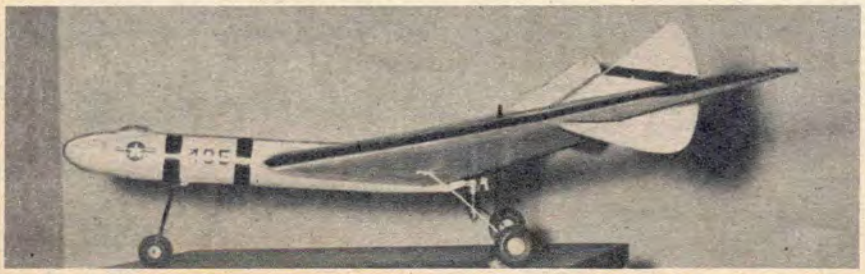
N. R. Hess, Salt Lake City, is responsible for this Atwood Glo-Devil 60 powered Boeing-Stearman PT-13. Does 48 mph; boasts working ailerons.



British kit job for Nordic A2 class Swedish sailplane contest by C. D. Amerman, Newark, N. J. 14 oz.; plug-in wings; autorudder tail device.

Squadron of flying saucers and a flying wing made by Francis Gruber, Albany, N. Y. Saucers have various power: Jetex, Mini-Jet, and towline.

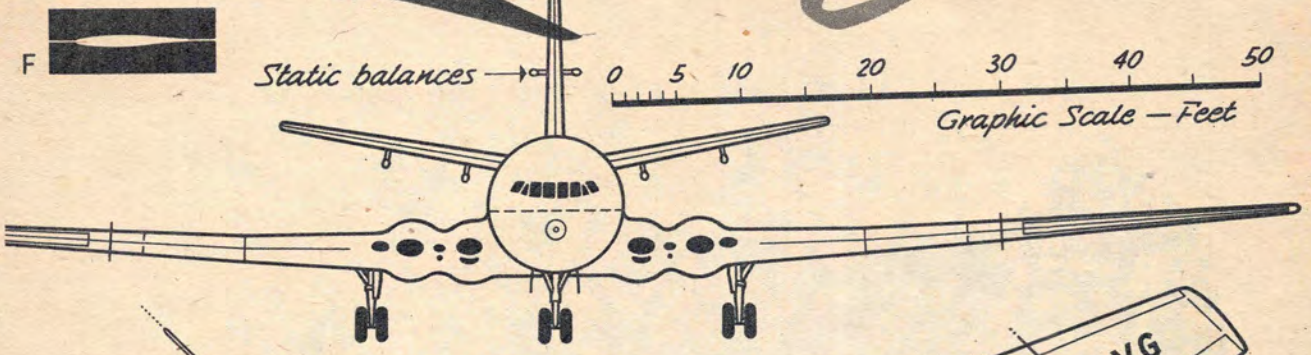
Ed Woods, Rayland, Ohio, held Knight Twister plans for 5 yrs., then spent 6 mos. on construction. Result was this sweet, 60 mph Forster g.p. .29.

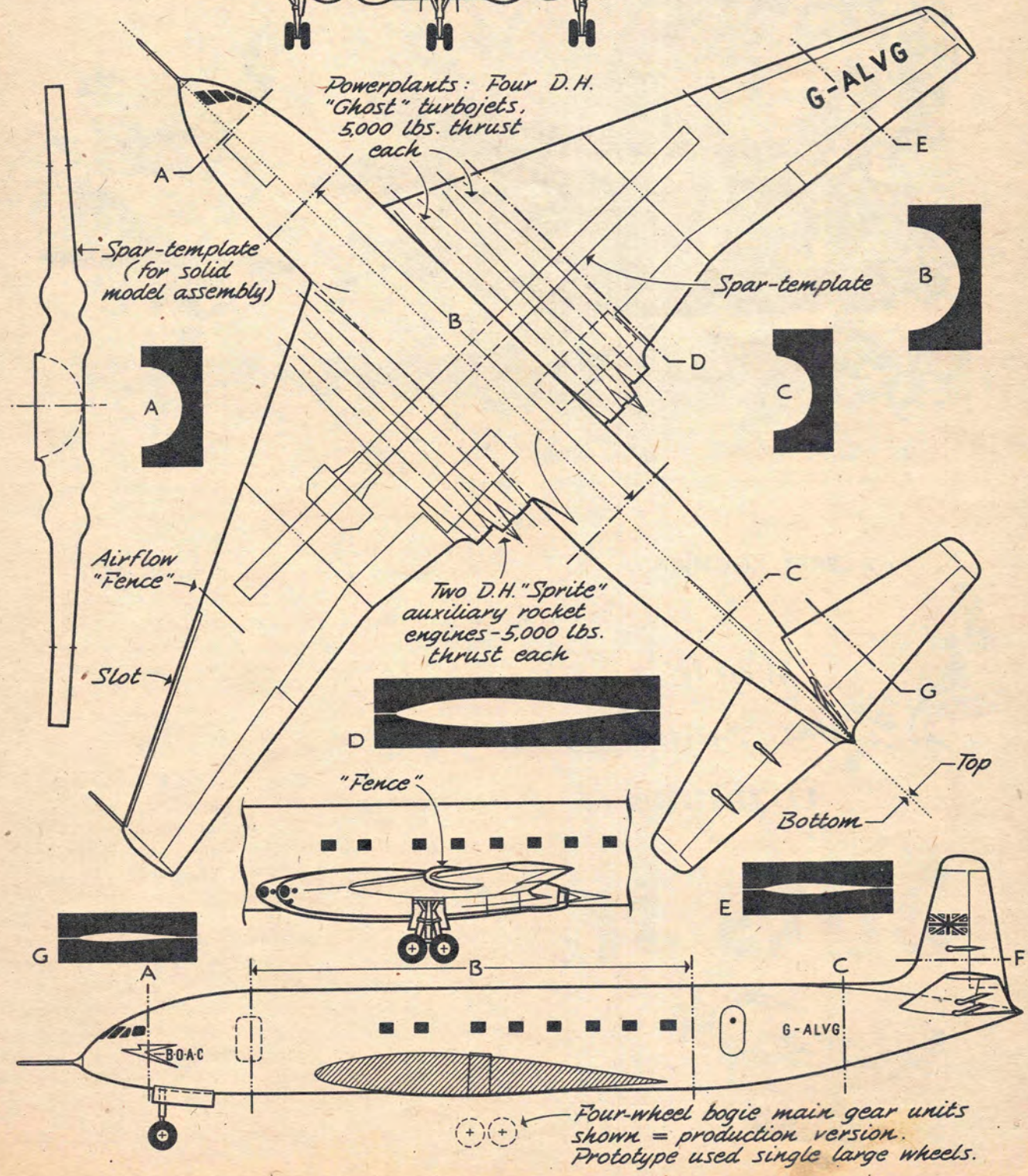


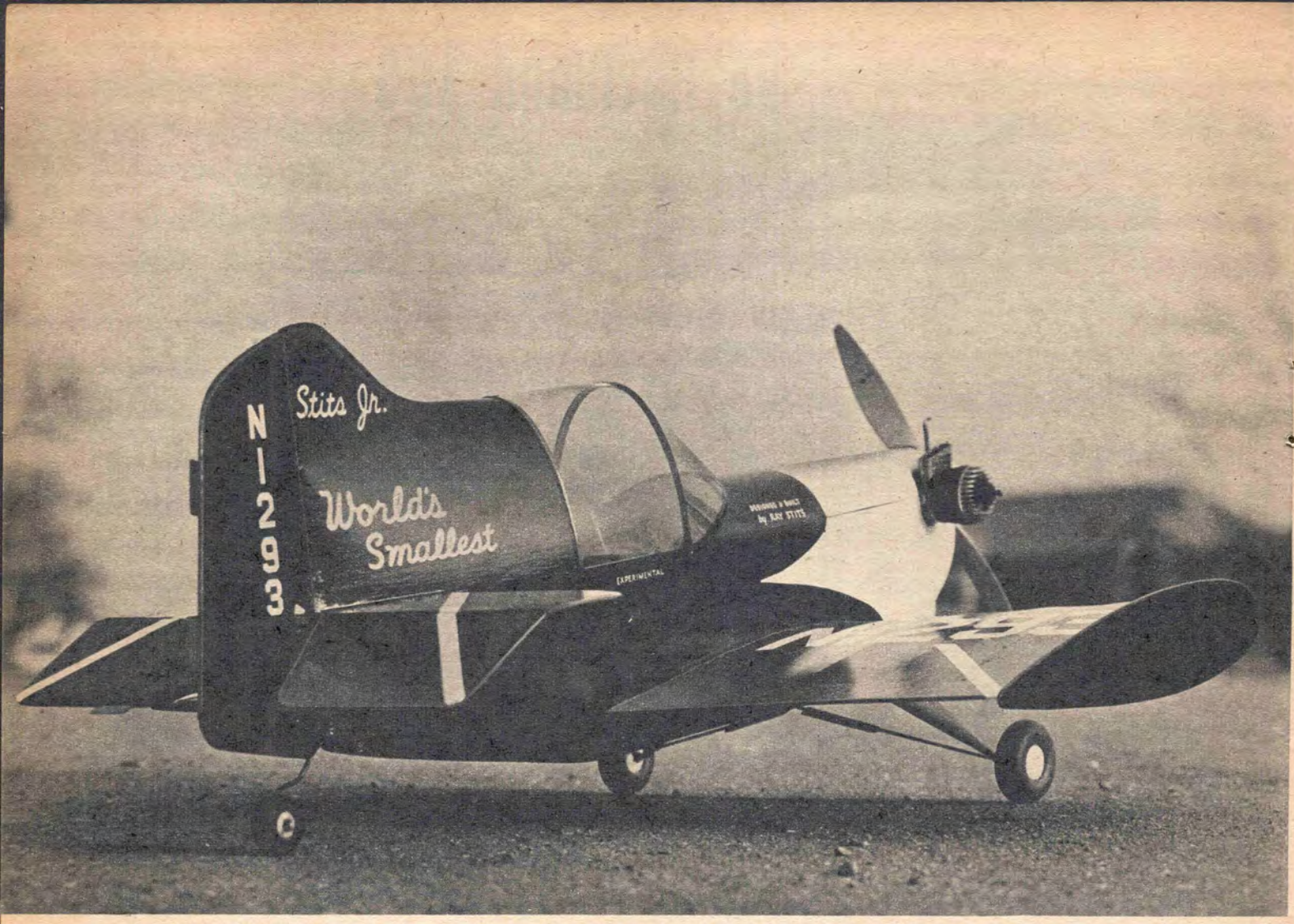
Basically this is a Jasco 50" Sailwing towliner kit. Don H. Helfer, Tillamook, Ore., added planked fuselage. Power is Anderson Spitfire; prop and engine run backwards. Considerable downthrust was found necessary: 8 degrees. Nose ballast and large rudder area aid the glide.

Delanne Duo-Mono does 80 mph with McCoy 29 Red Head much to surprise of builder Lorin W. Hess (above) and his Salt Lake City friends.

# de Havilland 106 Comet






A real "George" airplane; wingtip plates were first used by modelers, then picked up by full-scale designers. They increase efficiency by 15%.

By AUBREY KOCHMAN

# *World's Smallest Airplane...*

# Stits Jr.

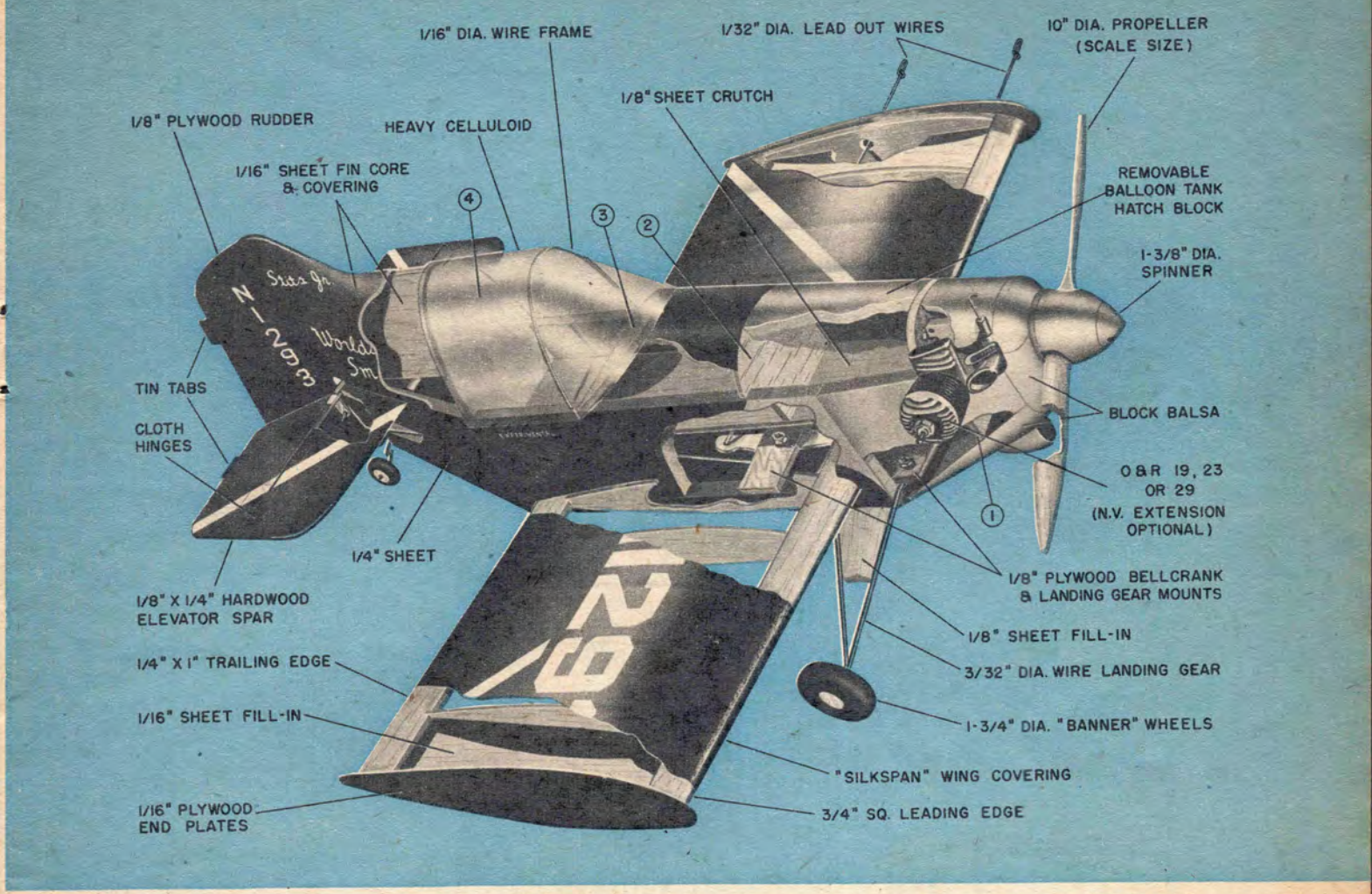
■ Building a model at two-inches-to-the-foot scale usually results in a large-size craft even if a small plane is used as the prototype. In the case of the *Stits Jr.*, however, we find the opposite to be true because this ship holds claim to "World's Smallest."

The configuration of the *Stits Jr.* lends itself very well to control line flying with its short tail moment and large tail surfaces. It is not recommended for advanced stunting, however, due to its short span and high wing loading.

Before starting construction bear in mind the all-important weight factor. Following the grade of wood indicated on the plans and depending on the engine used, the finished model should weigh no more than 18 ounces. The model also had a tendency towards nose heaviness, but this was corrected by using a ⅛" plywood rudder.

Build the wing in one piece, crack the leading and trailing edges at the center for the proper dihedral angle and cement the 1/16" plywood gussets in place at the breaks. Add the bellcrank and the lead-out wires but not the end plates. These go on after the wing is covered but before water-shrinking the paper.

The fuselage is built directly onto the wing. Using soft ¼" sheet, cut two identical pieces 8-⅝" long by




Fuel tank for the craft is a 10¢ toy balloon, first popularized by Jim Walker. Model will take variety of powerplants in the .19 to .29 range.

3" wide. Cut 5/8" off the bottom edge. These pieces are then cut out to fit the leading and trailing edges, the bellcrank mount and the clearance holes for the lead-out wires. Draw a line on the inside of each side at the crutch line and cement these pieces to the inside of the center ribs and perfectly square with each other. Use plenty of cement at all joints.

Cut out the crutch from 1/8" hard sheet as shown on the top and side views and cement in place on the pencil lines previously drawn. Recheck for squareness and alignment. Add the front and rear side pieces working upside down, using the work table to insure a straight top edge. The stabilizer and elevators when completed are cemented to the fuselage so that the stabilizer is flush with the top edge of the sides.

Cut out all formers with the grain running as indicated and cement in place. The fin core is 1/16" hard sheet joined with grain. Cut to outline shape and cement to the stabilizer and former 4. To cover this section, join two pieces of 3" soft sheet and cut to the fin outline shape, allowing a good half inch extra height. It is not necessary to pre-bend this covering. Just run a bead of cement along the top edge of the fuselage sides and the edge of the fin to which the rudder is joined. Pin the sheeting in place and allow to dry thoroughly.

Now run a bead of cement along the edge of former 4, the fin core and coat the side of the core with cement for about an inch down from the top edge. Work as quickly as possible and pin the sheeting in place starting at the fin-rudder edge and working forward to former 4. Check to make sure that the core remains square with the stabilizer. Follow the same procedure in covering the other side. Trim away excess wood to proper fin outline and smooth any imperfections with filler.

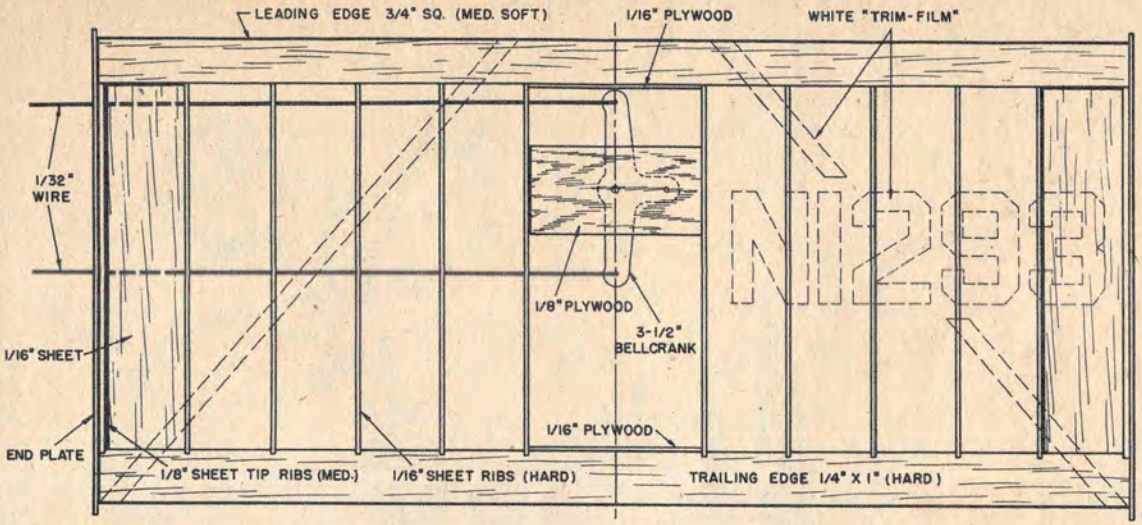
Sheet cover the section between formers 2 and 3, pre-bending the 1/16" sheet by the water and cement method. Install the pushrod, landing gear and tail wheel. Note that the plywood landing gear mount is installed at a slight angle and is cemented to the wing leading edge as well as the fuselage sides. Cover the bottom of the fuselage with 1/8" sheet with the grain running

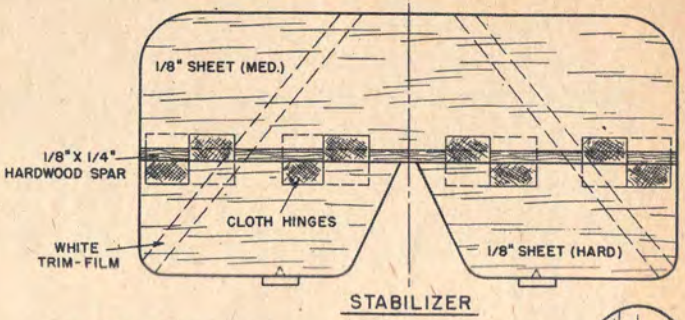
(*Continued on page 68*)

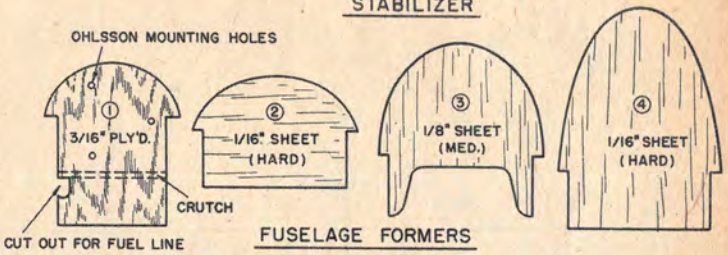
**Working plans on next page.**

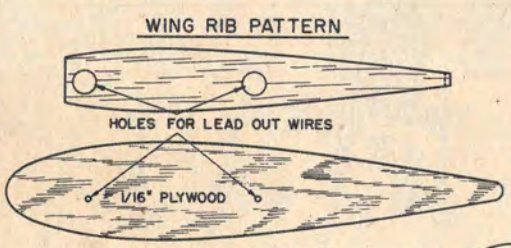
# Stits Jr.

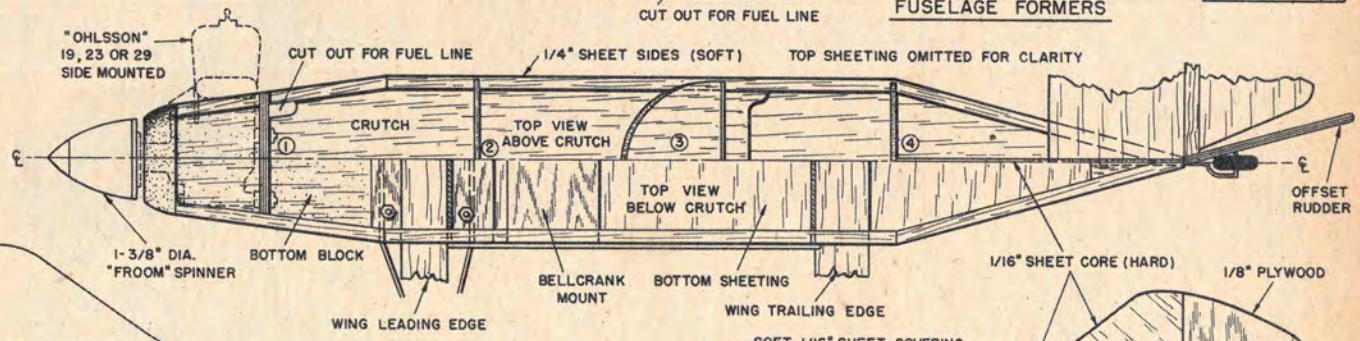
*World's Smallest Airplane . . .*

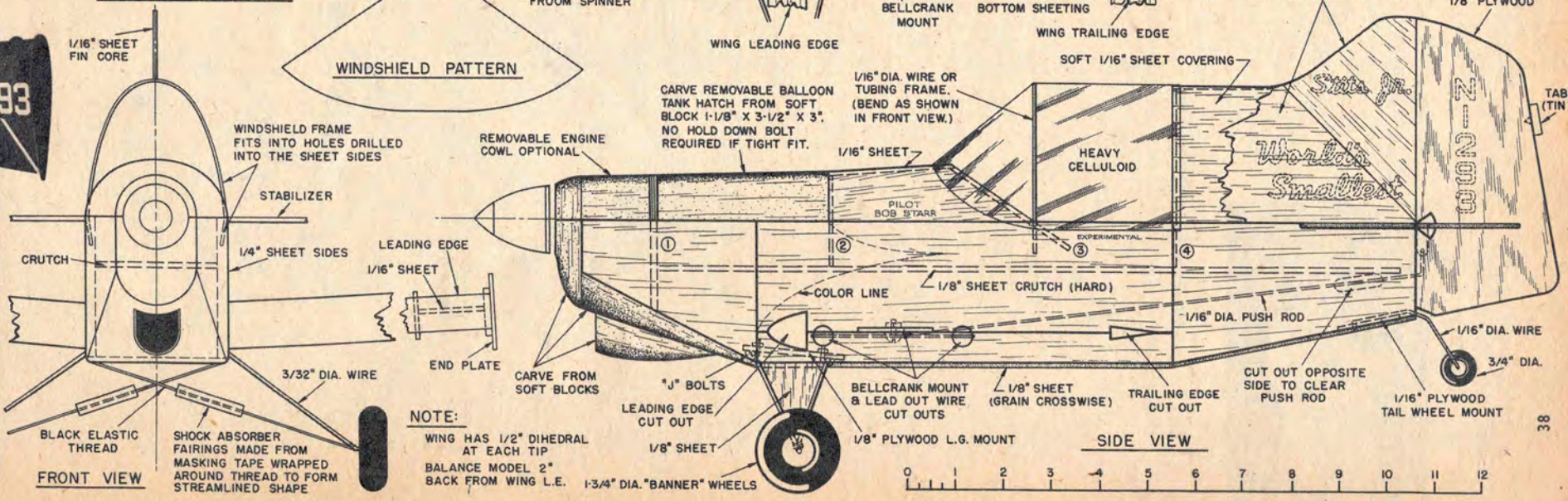



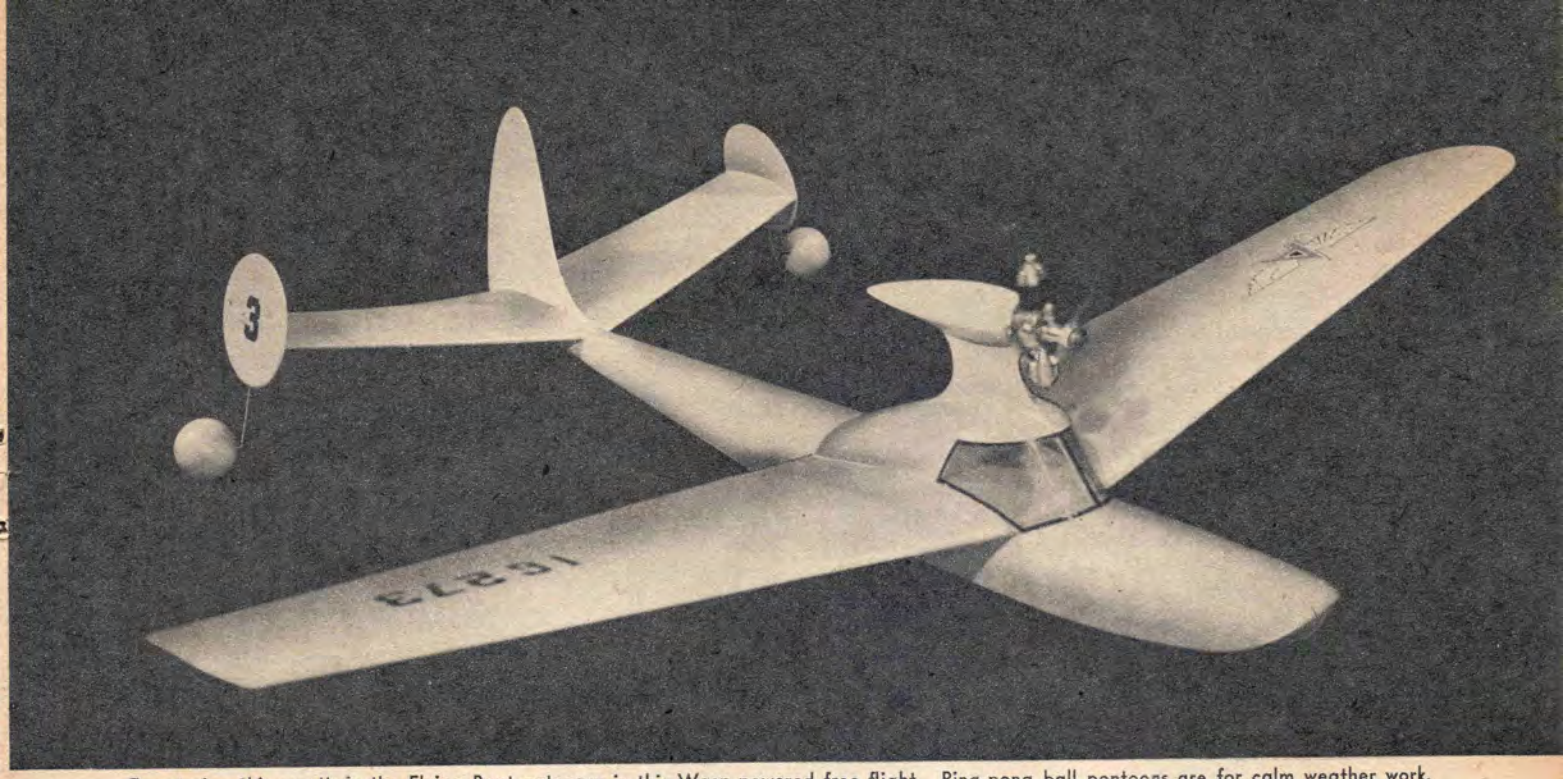




NOTE:
WING HAS 1/2" DIHEDRAL AT EACH TIP
BALANCE MODEL 2" BACK FROM WING L.E.



Top design this month in the Flying Boat category is this Wasp-powered free flight. Ping-pong ball pontoons are for calm weather work.

## AIR-MODEL DESIGN COMPETITION

# Flying Boats

**Have you tried your hand at designing a "dream" ship? Com'on, it's easy, join the fun, enter now**

■ Ever watch someone hand-launch a Flying Boat when your main interest was in a water take-off? Disappointing, wasn't it? The other extreme is when the Flying Boat refuses to become airborne and scoots around and around on the water.

These examples point up the major problem with a Flying Boat, which is water taxiing stability. A standard R.O.G. model practically jumps off. But a Flying Boat has a gradual build-up of speed. This means that the R.O.G. model offsets the torque of the engine by the action of the wing almost from the start. A Flying Boat depends on its flotation gear to take care of the torque at the start of the flight. Therefore, to achieve water taxiing stability we must control the torque with the flotation gear we use.

Torque effect depresses the left wing float much deeper than the right. This means that when the model begins to move the greater drag of the left float will produce a left taxiing circle.

The effect of taxiing to the left will be to expose the dihedral of the right wing to the airflow, producing greater lift on the right side. To counteract this increase of lift on the right side, the left float will have to carry a still greater load, which means that the left float will have to ride deeper in the water. This automatically increases its drag and tightens the turning radius. Under such circumstances the model has a poor chance to take off.

Knowing what happens if we let the model develop a left turn while taxiing, we should design the model so that it will tend to move in a straight course. It is not as easy as it sounds since we are working in two mediums, air and water. There may be many different solutions which will prove satisfactory, but we confine our discussions to the design on page 41.

The most important reason for this design is the layout of the flotation system: main float in front, and two small ones on the stabilizer. This arrangement has proven itself on R.O.W. models even though we may not see it on big-size Flying Boats because it provides torque control with the needed fore and aft stability. During the take-off period, while the model is gradually lifting off the water, the rear floats still provide torque control. If the floats were in front, they would lift off the water before the wing started to provide torque control. Fore-and-aft stability is essential during the take-off because the model should hold a horizontal position. If it bobs and tips, it may build up too much drag and retard the take-off.

Another factor to consider in designing Flying Boats or R.O.W. models is the vertical position of the C.G. A boat is designed with the C.G. below the

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ABOUT THE DESIGNS: You are not required to build a model in this contest! All you do is submit detailed 3-view drawings of your favorite "brain-child" in each of those categories listed (plus sketches if you are artistically inclined). These drawings should not be less than 8 x 10 inches and must show dimensions. Give data on wing sections and settings, cross sections, center of gravity, weights, proposed power and the like. It's not your drafting skill that will win, but your designing ability and imagination. AT selects meritorious designs and presents them in 3-view form; payment of $5 will be made for each one published. The top design each month will be built and test-flown by AT's design and research team and the model will be given to the winner with all the equipment that goes with it. CATEGORIES: You have until June 1, 1951, to get your design studies in the mail for Half-A-Speed models for engines under .09 cu. in. displacement; until July 1, 1951, to have entries postmarked for combination R.O.G-R.O.W. sport free flight featuring interchangeable landing gear; for any size engine; model should not be of amphibious (flying boat) type. SEND YOUR DESIGNS TO: Air-Model Design, c/o Air Trails, 304 E. 45th St., New York 17, N. Y. Decision of Air Trails staff is final; no entries will be returned.

## AIR-MODEL DESIGN COMPETITION: FLYING BOATS

Center of Buoyancy. This provides automatic water stability. When the boat tilts, the C.B. will tend to swing it back. But such is not the case with Flying Boats or R.O.W. models. The C.G. is above the C.B., thus exaggerating the condition whenever the model tips. The tip floats, of course, prevent the wing from dipping into the water. But they do not stop the C.G. from affecting the final outcome. Hence the use of a low wing to bring the C.G. down as much as possible.

The design selected has a generous amount of rudder area so that at low speeds the model will point straight ahead. And in a slight breeze the directional control is a certainty. Two floats in the rear provide greater water rudder effect than a single one. The dihedral angle is comparatively low, but still adequate for ordinary flying and torque control. Low dihedral will permit the wing to move through several degrees of side skidding without action from the dihedral. More dihedral would react quickly and perhaps overturn the model. This means that when the model is taxiing in a circle, the dihedral effect will not be excessive, and the "loaded float" will be able to handle the dihedral "load" without trouble.

By using low dihedral in combination with large rudder area, directional stability is practically guaranteed. The large rudder area will not permit any great change from a straight flight or taxiing movement into side skid angles. And those skid angles resulting will not be very effective on the low dihedral. This means that the flight pattern should be adjusted for large circles.

Low dihedral in combination with a low wing position enables the wing tip to touch water without excessive angling of the model should the wind be strong. The wing acts as a flat float and prevents further "dipping" due to pressure of wind on the exposed dihedral.

Because it moved so little from its vertical position, and the effect of wind on low dihedral is small, the model (*Continued on page* 54)

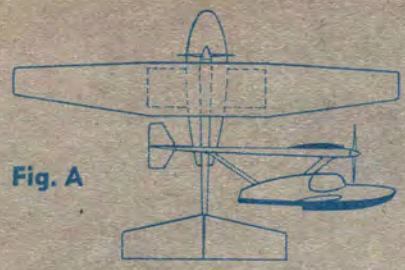


Fig. A

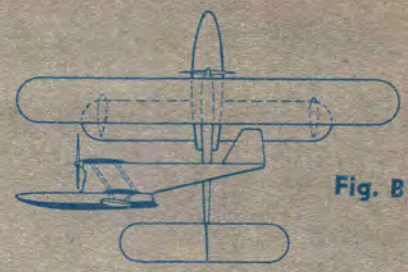


Fig. B

**Fig. A.** Mr. Sikorsky would easily recognize his basic design. Sponsons may work well on big ships, but are doubtful on models. Torque would tend to depress left sponson, thus introduce turning tendency.

**Fig. B.** This design harks back to the Loening. Purpose of lower wing is to provide extra lift and support wing floats; can also serve as emergency float. Fore-and-aft stability of this design is poor.

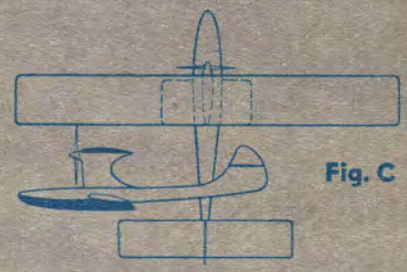


Fig. C

**Fig. C.** Dornier-type with pleasing lines, has affected model design. Take-off characteristics are usually bad. Addition of water fin under hull near tail would add directional stability during take-offs.

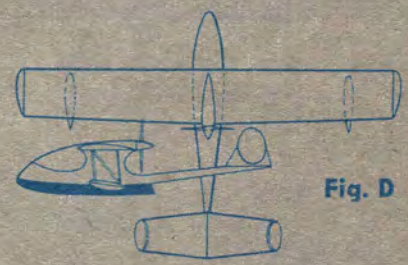


Fig. D

**Fig. D.** Seabee influence is obvious; as model it lacks water stability. C.G. on the high side. If towed by boat and wings held level it might get off water. Definitely not to be recommended for R.O.W. work.

**Fig. E.** Note Savoia Marchetti touch in the two floats. Idea sound; engine could be lower to bring down C.G. Main problem would be excessive water wetting area. Torque effect small: use powerful engine.

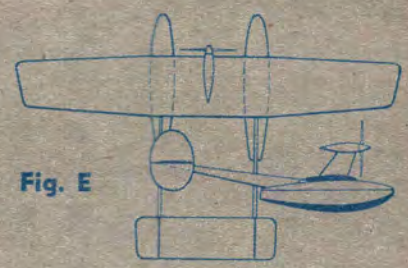


Fig. E

**Fig. F.** Henry Struck had good success with a design similar to this. Position of engine helps to lower center of gravity, but stability on the water during take-off will still present some major difficulties.

**Fig. G.** "W" shaped bottom is featured on this hull. Actually it's pretty much a model water scooter with wings and stab added. Design is considered promising by the judges; nearest relative is Chris-Craft.

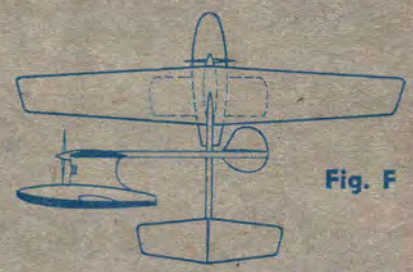


Fig. F

**Fig. H.** Hydro-vanes under buoyant streamlined shells rise to surface as model moves forward in water and act like water skiis. For additional water stability dihedral in hydro-vanes might be good.

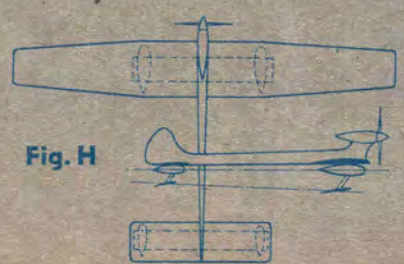


Fig. H

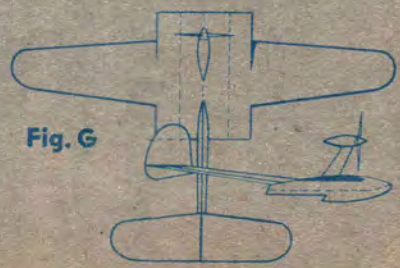
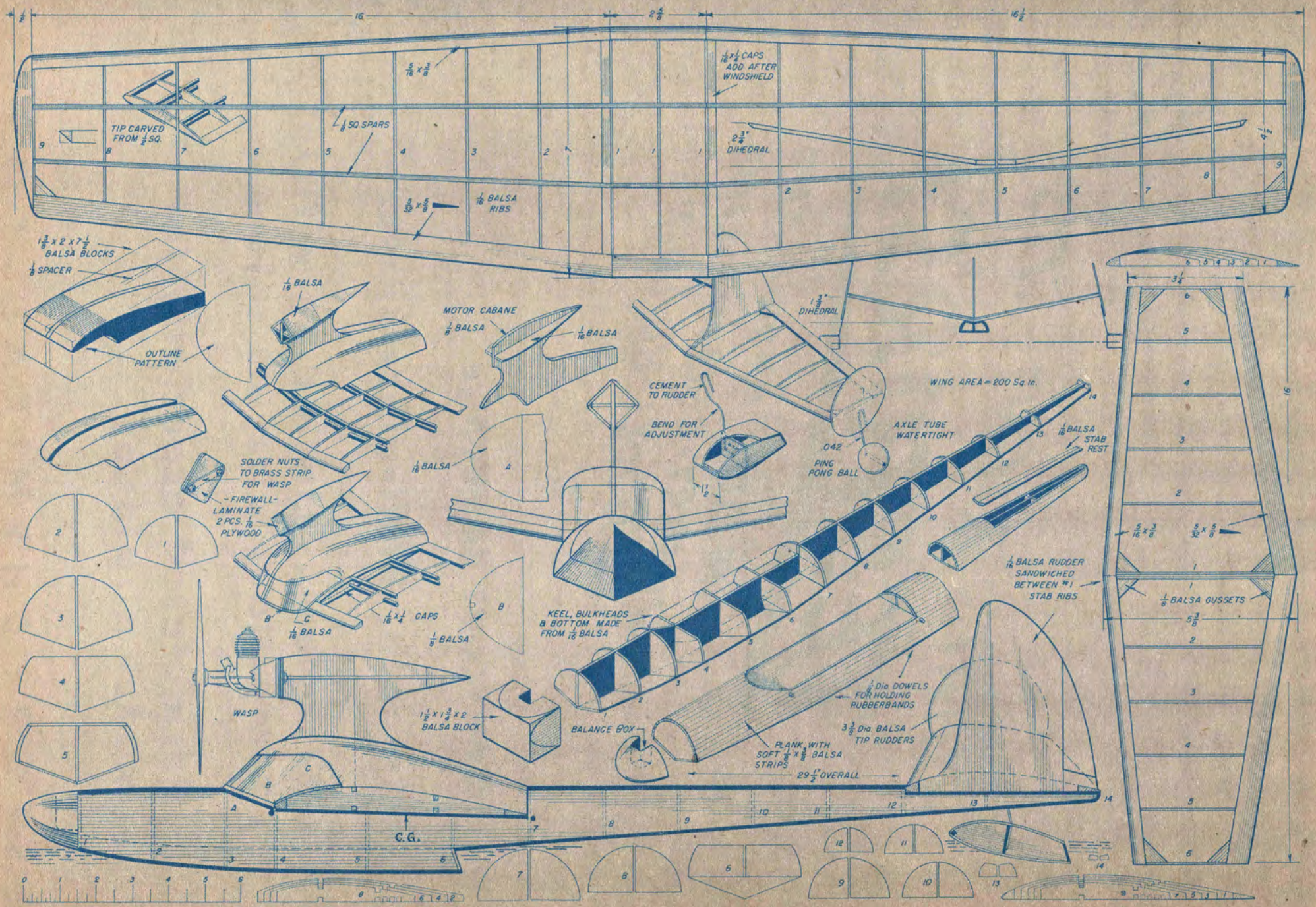


Fig. G


16
2 5/8
16 1/2
1/16 x 1/4 CAPS ADD AFTER WINDSHIELD
5/16 x 3/8
1/8 SQ. SPARS
TIP CARVED FROM 1/2 SQ.
2 3/4" DIHEDRAL
5/32 x 5/8
1/16 BALSA RIBS
1 3/8 x 2 x 7 1/2 BALSA BLOCKS
1/8 SPACER
OUTLINE PATTERN
1/16 BALSA
MOTOR CABANE
1/8 BALSA
1/16 BALSA
1/8" DIHEDRAL
CEMENT TO RUDDER
BEND FOR ADJUSTMENT
WING AREA = 200 Sq. In.
AXLE TUBE WATERTIGHT
.042 PING PONG BALL
1/16 BALSA STAB REST
SOLDER NUTS TO BRASS STRIP FOR WASP
-FIREWALL- LAMINATE 2 PCS. 1/16 PLYWOOD
1/16 BALSA
1/16 x 1/4 CAPS
1/16 BALSA
1/8 BALSA
KEEL, BULKHEADS & BOTTOM MADE FROM 1/16 BALSA
1/16 BALSA RUDDER SANDWICHED BETWEEN 1ST STAB RIBS
1/8 BALSA GUSSETS
5 3/8
1/8 Dia. DOWELS FOR HOLDING RUBBERBANDS
3 3/8 Dia. BALSA TIP RUDDERS
WASP
1 1/2 x 1 3/4 x 2 BALSA BLOCK
BALANCE BOX
PLANK WITH SOFT 1/8 x 3/8 BALSA STRIPS
29 1/2" OVERALL
C.G.
3 1/4
16

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# meet the Kingfish

**Who's the most famous modeler in all Arkansas? Who's King of the Little Rocket crowd? John Sadler is his name. Step into the "Shop"**

**By H. A. THOMAS**

■ The model dealer had no way of knowing what he was starting when, back in 1934, he sold the middle-aged business man a Cleveland profile rubber model kit. The man was John Sadler and the model so intrigued him that he built another, and another. Now, after sixteen years, Sadler continues to build models and to encourage modeling as the wholesome, instructive hobby he knows it to be.

Fig. 1

It is significant that had that first inexpensive kit not been a good piece of merchandise, model aviation might never have had the considerable boost which John "Kingfish" Sadler's participation has given it. For those who know him are convinced that he ranks with the leaders in the field of modeling.

A successful business man and self-styled "World's Greatest Fisherman," Sadler's rare talents combine unusual mechanical aptitude, perseverance which borders on stubbornness, and a love for things practical. Even his earliest models reflected excellent workmanship and structural soundness, and though he wages no war with the theorists, his models have always incorporated only those aspects of theory that could be proved sound by tests in the field.

Sadler has had greatest success with low-wing models although he does not claim them to be superior in every way. His second rubber model exerted a powerful influence on him in this respect. The plane was a near-scale Howard *Pete* kit, manufactured by Pioneer; a neat low-wing which flew with great stability. He advocates kit models but the little 1934 Howard was his last out-and-out kit job—the creative era had begun.

First departure from printed plans resulted in the *Big Howard* (Fig. 7), which was a king-size *Pete* with alterations that made it a real flyer. When a streamlined kit model known as the *Stratosphere* became popular with modelers in his area, Sadler—now a confirmed low-winger—produced a *Super-Stratosphere* which was a low-wing job of improved structure (Fig. 4). It employed Sadler's double-ratchet freewheeler, first of many useful gadgets attributed to him. The writer witnessed three successive flights of this rubber model which exceeded four minutes' duration each.

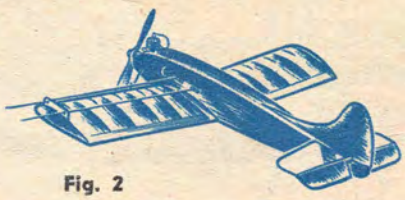


Fig. 2

As a dyed-in-the-wool rubber model enthusiast, Sadler did not share our original interest in gas models when we started construction on a *Baby Cyke* gassie back in 1935. Half completed, we took it by Sadler's for help with ignition wiring. By the time the model was ready to fly, it bore unmistakable earmarks of Sadler's attention: ribs were cap-stripped, leading edges sheet-covered, the landing gear was fitted with shock absorbers and the ignition boosters were used with a telephone jack plug-in system—a real innovation at the time. The engine had hardly cooled after a successful test flight before Sadler's order for a model engine was in the mail.

His first gas model deserves mention. It was our original design, reworked into a low-wing and equipped with *full pendulum controls* (Fig. 5). Battery cells swung in a bomb-like fairing beneath the belly, serving as weight for the pendulum. To this arm were fastened the linkages which automatically corrected rudder, elevators and ailerons for any displacement from level attitude. Lack of dependable power kept Sadler from ever proving the worth of the ingenious arrangement.

Fig. 3

Sadler's third engine was a Junior Motors model B Brown Jr. engine which is in running condition to this day. The new engine warranted an all-new ship, and since large gassies were the vogue in those 1936 days, the low-winger that emerged was a big one (Fig. 1). It spanned ten feet, wing chord was fourteen inches. It featured a combined RAF 32 (bottom)-Clark Y (upper) wing section, leading edge was built of sturdy box-section; it had a shock-absorbing gear fitted with huge five-inch diameter ashtray tires with wooden hubs and an exceptionally sturdy engine mount.

The model enjoyed a long and useful life—it was sensational wherever flown. So much "in the groove" was its flight pattern that Sadler could closely tell, except when thermals were encountered, where the model would land. Several of these craft were built by Sadler and others among his growing group of followers. In the huge ships, Little Rock, Ark., modelers pioneered use of the powerful, smooth-running Forster 99 engines in the Southwest. It was this powerplant in one of the big low-wings that scored one of the finest model

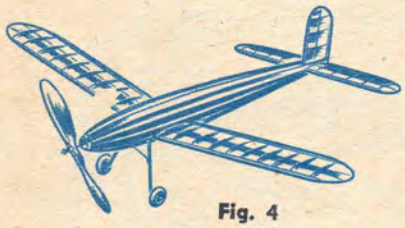


Fig. 4

flights we have ever witnessed. One hour and 48 minutes' duration, covering about eight miles, the flight involved two thermal currents with the model near the ground, midway of the flight, when the second riser was encountered. Despite weights of seven to eight pounds, these large models flew with a distinctive grace and elegance.

We can not forget Sadler's chagrin when, after driving 800 miles to enter a contest, he was disqualified because his model exceeded the seven-pound maximum.

Hinged wings were developed to more easily transport the big models but Sadler followed the trend to smaller ships. In 1938 his Dennymite-powered *Pacemaker* was built (Fig. 9). Identified by its gracefully curved wings, this low-wing ship left little to be desired.

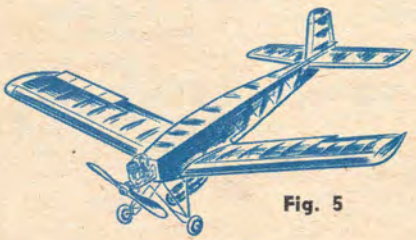


Fig. 5

Its fully cowled engine, staunch construction and capable flight performance made it Sadler's all-time freeflight favorite.

With this model he perfected his technique of flight adjusting; early

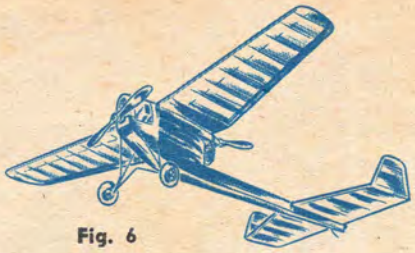


Fig. 6

in the game he devised a method of carefully measuring side thrust adjustments. In fact, a secret of his success in getting long service and high performance with his planes has been due to his care and thoroughness in adjusting toward optimum flight trim. The original *Pacemaker* logged over one hundred flights with its original propeller. After plans of the *Pacemaker* were published in Air Trails in 1938, reports came in to Sadler from many parts of the world telling of successful flights.

Ten years ago, as today, model builders bought ready-made, machine-cut propellers and thought little of the prop as a factor in performance and flight adjustment. Sadler, on the other hand, was carving his own; higher-pitched, shorter club-like props than the

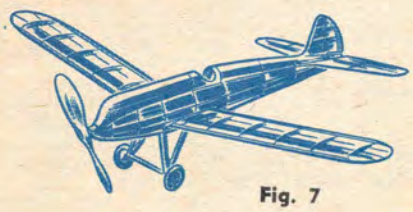


Fig. 7

large diameter, low-pitch styles others used. Sadler found these propellers made flight adjusting easier with the low-wing models and the type came into wide use throughout his area. He developed an assembly-line system of carving props by the dozen. Even by latest standards, these propellers would be considered first rate.

As a novelty, Sadler whipped up a "small" model of five foot span—low-wing of course—around the little Elf engine which has always been one of his favorites. He flew the model near his home with a casting rod, reel and line attached to a wingtip. He would reel in on the upwind side of the circuit, play out line on the downwind side. (It was a couple of years yet before control-line or tethered flight was to be introduced.)

When it was believed, in 1939, that forthcoming rules would allow unlimited power, Kingfish planned a tandem, twin-engine model to absorb more power (Fig. 6). First flights revealed odd turning characteristics which Sadler believed were caused by the rear engine's proximity to the single fin. Substitution of twin fins turned the trick. The ship, with Dennymite in front and inverted Brown pushing behind, was stable under power of either engine or both, and its powerful torque-free climb was nothing short of sensational. Ignition featured an ingenious over-

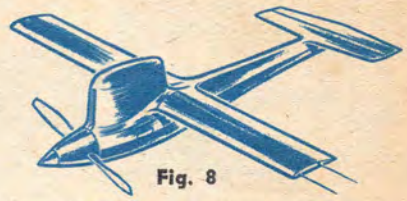


Fig. 8

lapping of some elements with one timer tripping both engines—one slightly ahead of the other to "round off" the transition to the glide.

But Kingfish, human after all, has undertaken a limited few model projects that may be described as something less than sensational. Eyeing the flashy *Zipper*, Sadler came up with a compact low-wing with odd humped back. This one, the *Hatchet*, was a vicious little problem child from the outset and was wisely dropped. A venture into the field of gas-powered flying wings brought up a flying-wedge contraption which, like the *Hatchet*, was later spot-landed in the waste basket.

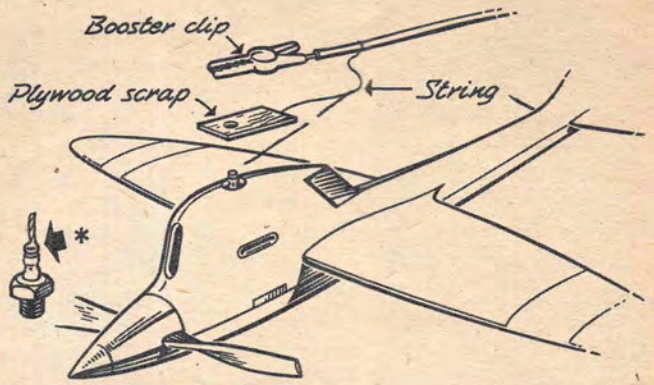
Flying his *Pacemaker* to first place in two state-wide meets is evidence of Sadler's prowess as a contestant. He gives credit to thorough preparation and adequate test flying prior to contest time. Though he obviously loves to trouble-shoot a sick engine, he has always opposed tampering with or dismantling engines unless it becomes absolutely necessary.

Kingfish disliked control models generally (*Continued on page* 58)

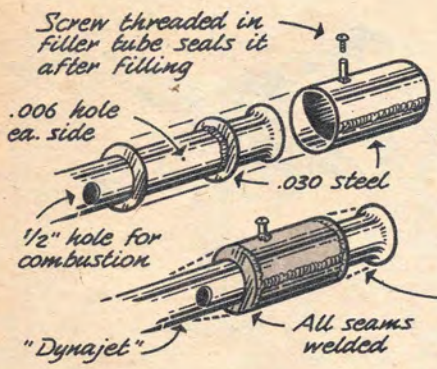
Fig. 9

# sketchbook

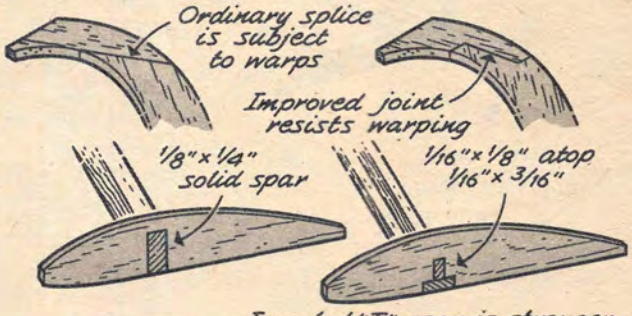
**Have you developed something new in construction, control, or flying that might interest other modelers? Send a rough sketch—we'll redraw it and pay $5 for each one accepted. Due to their large number, we're sorry that we cannot acknowledge or return submissions.**




• Earl Cayton, Salem, Ore., uses plywood shield to prevent marring cowl surface by booster clip — Extension * may be soldered to glo-plug if necessary

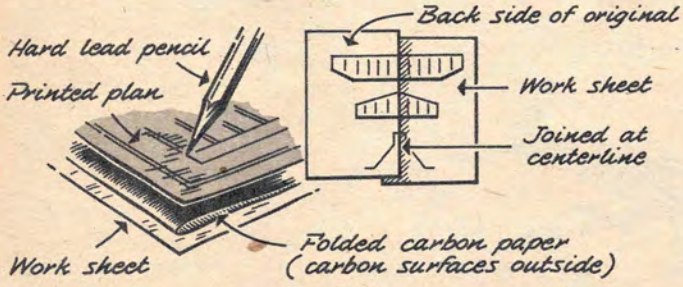



• Jet afterburner proposed by M. Krim, New York, N.Y., uses gasoline or kerosene - vaporized by tailpipe's heat, ignited by jet blast —

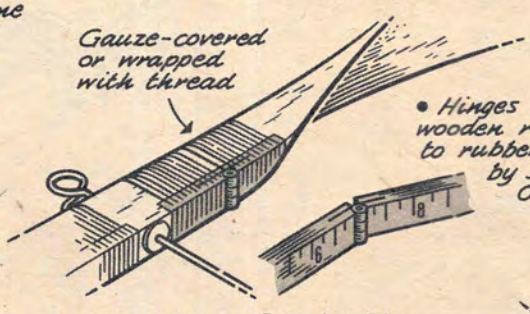



Inverted "T" spar is stronger, lighter than solid spar —

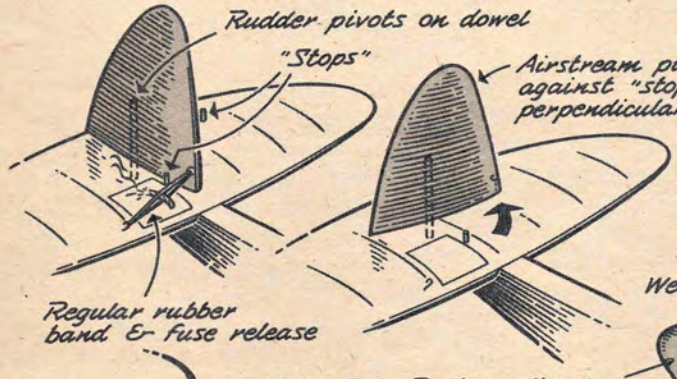
• Construction improvements for rubber models — adaptable to other types — by: Gene Tempelmeyer, St. Louis, Mo.

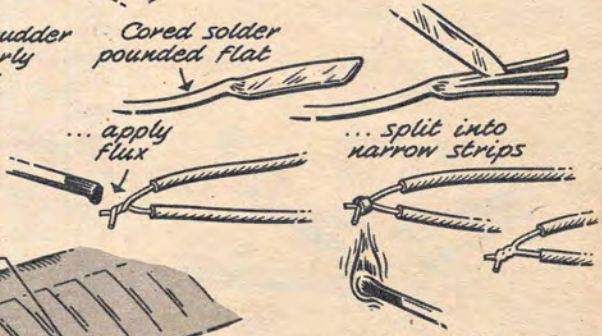



• Doubled carbon paper produces left- and right-hand halves of symmetrical parts in one tracing operation — From M. Usman Beg., Karachi, India




• Hinges from folding wooden rules are fitted to rubber model props by Sherman Ovelman, Ottawa, Ill.



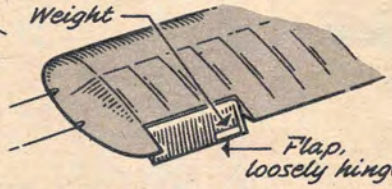




... wrap with solder strip, heat with match —

• Phil Koopman, Flora, Ill., uses this method of soldering connections in the field

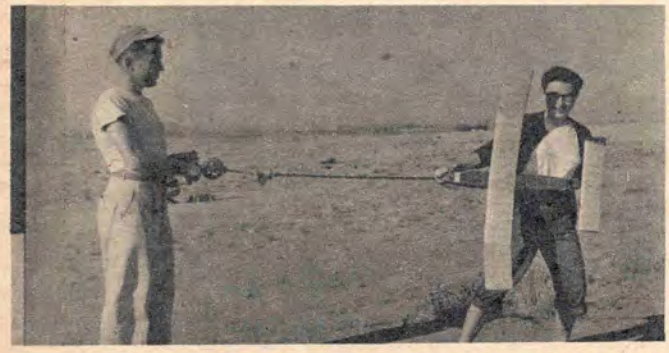
• "Flat Spin Dethermalizer" is ultra-effective and safe reports Paul Tobin, Mitchell, S. Dak.

← Model spins within its wingspan, losing approx. 5 ft. per rev.




• Device keeps stunt job's inboard wing up, upright or inverted, says Dave Doty, S. Bend, Ind.


Del Swartz with his Baby Spitfire powered flying wing. A very successful flyer, the model is a departure for Del who is noted for his scale work.



One of the advantages of married life: a fellow acquires a permanent helper. Hal Roth winds and launches, while the Mrs. holds and chases.

■ We are pleased to announce that trophies were awarded to "Mom and Pop" Robbers and June Dyer. Though this may seem a very unusual way to head a column it is not without reason.

Mom and Pop and June are very well known to all model builders here in the West. They never enter contests, but there are few contests in the northern part of California in which they do not take part, doing the countless thankless jobs of recording, directing and the like. Then in between all these shindigs they manage to get out reports on all activities and keep the minutes of all meetings.

June Dyer's trophy was for doing all this work for the Northern Calif. Free Flight Council, using her money and time with no thought of reward.

"Pop" Robbers is the recipient of two awards. The *L. A. Thermal Thumbers* presented their achievement plaque in appreciation of the outstanding efforts shown by him in helping to further the American Wakefield Programs. The "TT's" feel that the men behind the scenes are vitally important to the hobby and they hope to feature the selection of a worthy candidate for this recognition every year.

The other award was from the Western Association Modelers for Mom and Pop's unselfish and devoted work for this group. So far this award has consisted of a very nice coffee table and a large white hat for the coming contest season. Those of you who have never seen Mom's hats have never seen a large white hat.

A little on the other side we are very sorry to hear that Ocie Randall has retired as a contest director. After ten years of C. D.'ing, Ocie has expressed a desire to do a little flying himself. He has been very active as a leader member and Contest Director of the A.M.A. He has a very impressive record, having been President of the California Association of Model Clubs for two years, Vice President one year and Contest Commissioner for two years. For the past six years as Editor of the Fresno Model News, he has not missed an issue. Ocie will remain as Editor of the Model News and as an adviser to the Fresno Club. You did a swell job, Ocie; we hope your successor will carry on in the fine tradition you have established.

There is a new kind of a contest now going on in San Diego known as the Jim Walker Solo Flight Tournament. Its purpose is to teach fellows how to fly U-Control, and the prizes to be awarded (cash prizes, incidentally) are for the teacher and not the flyer. Each instructor will be given points based on his or her ability to teach the novice the basic fundamentals of control line flying. Being a wide-open contest, it is limited in duration to one month; there is no restriction as to size or type of model used providing said plane is licensed under Jim Walker U-Control patents.

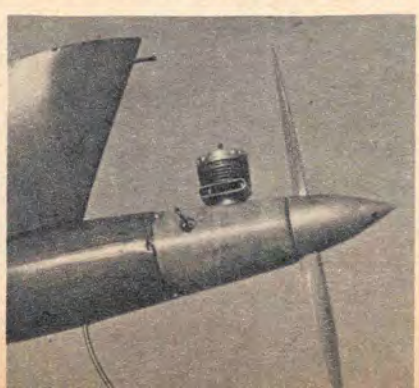
Each student will be allowed three attempts to gain the maximum points in any one flight for his instructor. Since the contest is primarily one for the novice, there are no bonus points for any intricate stunts, the majority of the points being obtained for fueling, starting, take-off, twenty-lap flight, and landing. Even if a fellow does three loops, he can get only three extra points. This sounds like a very good idea and it has been suggested that if it works out here it might be tried on a National scope with prizes larger than any ever given before.

There is a movement afoot to start a Calif. Chapter of the Langley Field, Va., *Brainbuster's Club*—or at least it would be apropos. Bob Dagand and Ed Slobad started it all, then came Dick Everett. Just recently Dick Sladek, newly crowned aerodynamicist, went to work for Convair; not long ago Sal Taibi and wife Nan came through on what we expected to be a visit. They were in California two days when he called and said he had taken a job in Pasadena and bought a house. Just one more modeler who likes to fly models the year around.

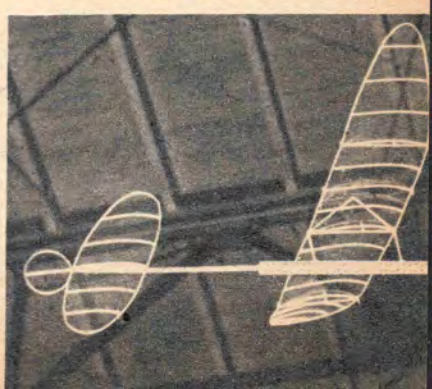
The Thermal Thumbers Team Wakefield (*Continued on page* 65)

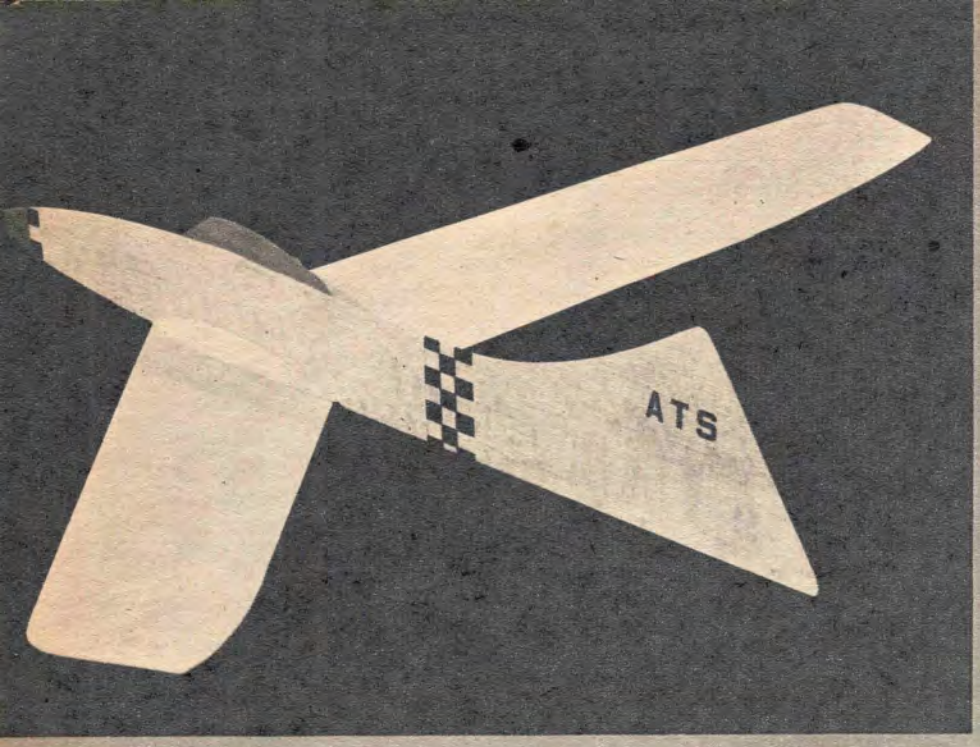
Five famous flyers: front, Red Everitt (left), Ernie Wrisley., Back, from left, Fudo Takagi, Dick Everett and G. Kline with modified Flying Cloud.

Motor fairing from phenol impregnated fiberglas made by Rog Jensen of Thermal Thumbers. Material was baked in oven around balsa form.



Mono-spar prop and 1/32 in. square fuselage pieces feature Joe Bilgri's indoor stick model. Weight is .033 oz.; one of Joe's "heavy" jobs.






# Supersonic Wing

By FRANK EHLING

**Real jet flight thrills await you when this sleek fighter-like model takes to the airways**

■ This little Jetex 50 powered job is a flying wing capable of turning in consistent flights, something hard to say about many efforts made in the past in the same field. As you rack up flight after flight in precisely the same manner, you will appreciate that the proper planform, correct location of the center of gravity and ample rudder area are what turn the trick.

Despite its simplicity and ease of construction (the complete model is made from 1/16" sheet balsa), the *Supersonic Wing* is a high-performance craft. And for those modelers who may consider the Jetex 50 a low-powered jet engine capable of little more than a polite hiss, I'd like to advise that a light model properly trimmed for flight will lead you a merry chase over hill and dale. With this model I found it prudent to team up with a good cross-country runner. We spelled each other on the retrieving job!

The side-mounted jet engine permits you to trim the plane for straight-into-the-wind flights under power, thus giving a tight circle back over the field afterwards. But, as I said, be prepared for a good chase.

Obviously the most important part of a model like this is the wing; working with care, cut it from 1/16" "C" stock. Sand to airfoil shape. Notch it to provide the proper sweepback, cement the panels together with the dihedral shown. A V-groove is made for the elevators; these are raised ¼", then the soft copper wire hinges are cemented in place. Sand all edges carefully and—*presto!*—you have a completed lifting surface.

Cut the fuselage from a sheet of 1/16" sheet balsa, notching out for the wing. Cement the wing in place. While this dries watch for possible warping caused by the action of the cement. Add the cabin, then the Jetex holder. The fillets are next and are quite important, since they provide rigidity for the wing panels.

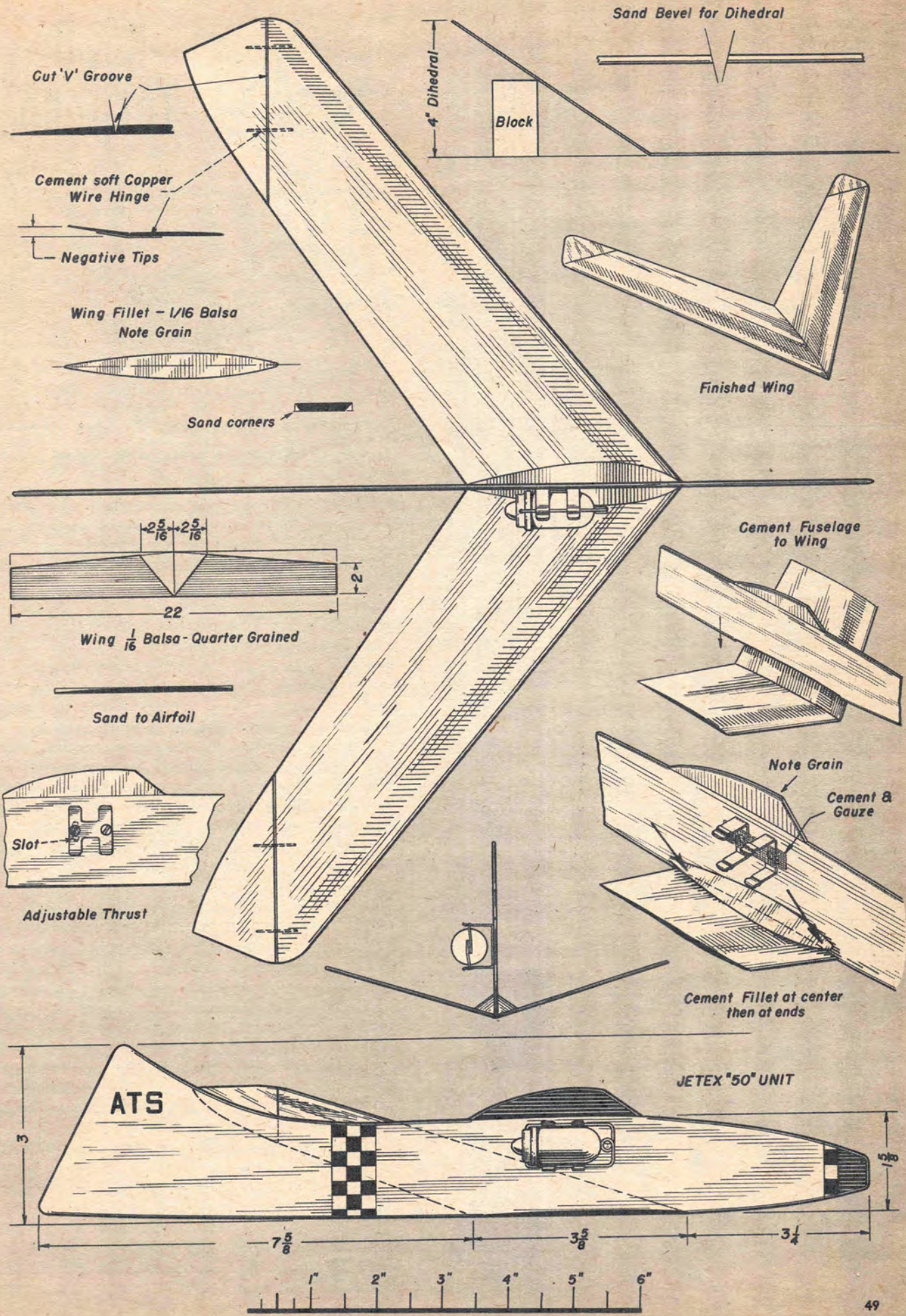
Over-all sanding is next. For peak performance this is a "must" since a rough, heavy model will consume too much power in the initial stages of the flight and altitude will be sacrificed. After sanding, apply a coating of clear dope to the entire model; add a few drops of castor oil to the dope to prevent warps.

For a real slick finish any dye that is soluble in thinner can be brushed on, then additional striping and numerals may be added with Trim-Film. It is such little added touches that produce an outstanding plane.

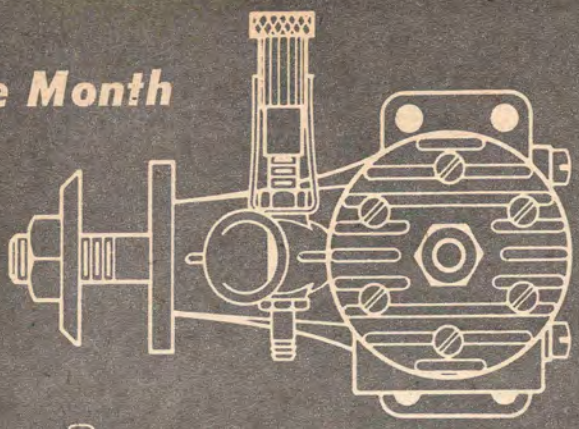
Test flying begins with gliding. Add clay to the nose until you obtain a smooth glide under reduced "arm-power." Then increase the "throw" until you approximate power-on conditions. The *Supersonic Wing* should take the strong launch without stalling and level out at the top of the launch, gliding down without any dipping action.

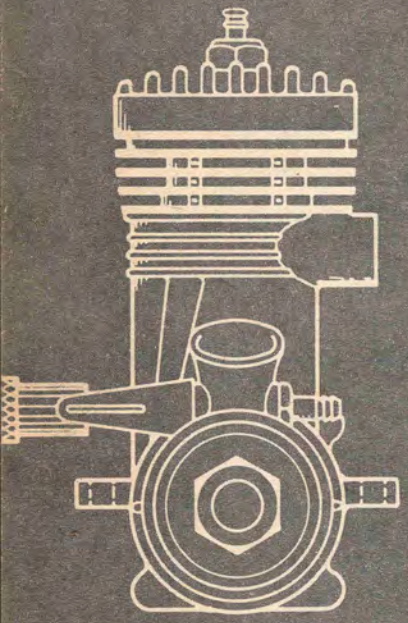
Now you're ready for power-on flights. Add the capsule charge to the Jetex; pack it in carefully per the instructions that come with each jet unit. Light fuse, then wait until jet is exhausting steadily before launching. A premature launch while the engine is still sputtering provides too little power and the model will settle instead of climbing, and the result may be a complete waste of power. So let it burn steadily for a second or two before the release.

Don't stall the model when launching; release it in a *slight* climb with a brisk, but not beefy shove. The movable tips will provide whatever additional adjustment is necessary under power. For those possessing a Jetex 100, increase this model's size by 50% for another outstanding flyer.


Sand Bevel for Dihedral
4" Dihedral
Block
Cut 'V' Groove
Cement soft Copper Wire Hinge
Negative Tips
Wing Fillet – 1/16 Balsa Note Grain
Sand corners
Finished Wing
2 5/16
2 5/16
2
22
Wing 1/16 Balsa - Quarter Grained
Sand to Airfoil
Cement Fuselage to Wing
Slot
Adjustable Thrust
Note Grain
Cement & Gauze
Cement Fillet at center then at ends
ATS
JETEX "50" UNIT
3
7 5/8
3 5/8
3 1/4
1"
2"
3"
4"
5"
6"

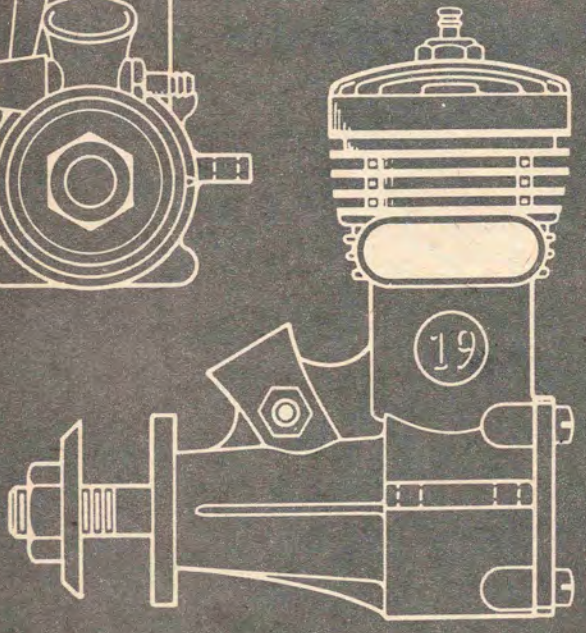
Motor of the Month

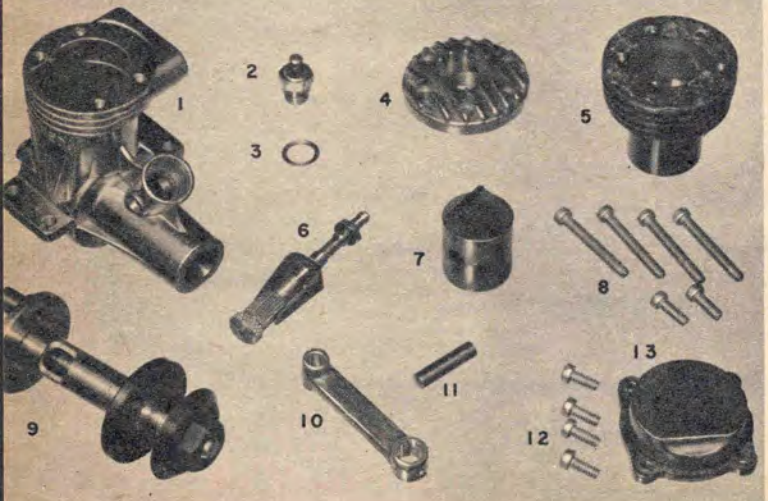


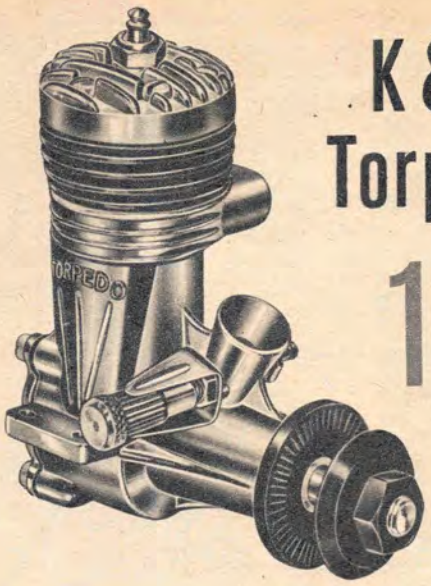


**FULL SIZE 3-VUES**

| | |
|---|---|
| Stroke | .620 in. |
| Bore | .624 in. |
| Displacement | .199 cu. in. |




# K&B Torpedo 19

**Newcomer to top of Class A flying is K&B's engine which passes tests with flying colors**

■ Ever since the introduction of glow plugs there has been a continuous trend toward smaller and smaller engines. Now with the introduction of this new K&B .19 we should see some very good models of 35 to 40 inch wingspan this season.

At first glance the new K&B appears to be rather large and heavy for a .19, but look a little further into the matter before forming an opinion. This model is engineered for high-compression operation, resulting in outstanding speed and power. Most glow plug engines average 5 or 6 to 1 compression ratio, but the K&B is more than 8 to 1. This results in very complete and even combustion, with increased power output and excellent fuel economy. This high compression also makes this engine capable of delivering good performance with the cheaper fuel mixtures that contain a low percentage of nitrates. Furthermore, high compression produces more even power due to complete combustion.

Another outstanding characteristic is excellent high speed operation for a lapped piston design. The test figures indicate a maximum of 17,500 rpm. This does not indicate the top limit, but simply the highest speed at which hand starting is recommended. This high-speed performance is accomplished by using lightweight moving parts and large air passages. The connecting rod is made of a special lightweight aluminum alloy and the piston is machined of cast iron with all excess material milled away on the inside, except at the wrist pin bosses where extra strength is required.

The large air passages start with a large-diameter crankshaft carrying an extra large rotary valve. Also, the bypass and cylinder ports are exceptionally large for a .19 displacement engine.

The engine tests were started with a half-hour break-in on a 9/6 wooden propeller. The test was made on one of the first few engines and the propeller supplied with the kit was not available. The 9/6 propeller produced a (*Continued on page* 76)

# Boys! IT'S EASY TO BUILD SCALE MODELS WITH GUILLOW'S *Sensational* DIE-CUT BALSA SHELF MODEL AIRPLANE KITS

## 12 DIFFERENT MODELS - ALL MILITARY - INCLUDING 4 JET JOBS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DOUGLAS AD-1 SKYRAIDER


NORTH AMERICAN P-51 MUSTANG


McDONNELL F2D-1 BANSHEE


BOEING B-29 SUPERFORTRESS


VOUGHT F4U-1 CORSAIR


CURTISS P-40 WARHAWK


LOCKHEED P-38 LIGHTNING


LOCKHEED P-80 SHOOTING STAR


REPUBLIC P-47 THUNDERBOLT


NORTH AMERICAN F-86 SABRE

## 25¢ EACH — EASY ASSEMBLY - NO DIFFICULT CARVING


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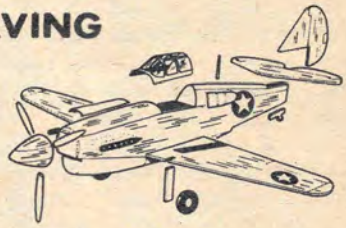
SERIES 25SDC SHELF MODELS.

12 exciting new pre-fab solids jam-packed with value - and at an unbelievable low price! Famous World War II fighters and in-the-news jets are available in this series. Easily assembled from razor sharp die-cut parts - all fun and no hard work. Buy at your dealer and save the mailing charge.



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**Trixter BARNSTORMER** $5.95

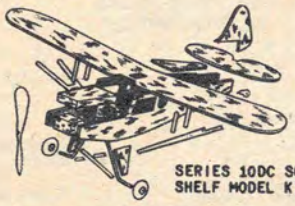
1ST IN SENIOR STUNT EVENT - 1ST IN OPEN STUNT EVENT - 47" WING SPAN - 470 SQ. IN. WING AREA - .23 TO .35 CU. IN. DISP. KIT CONTAINS FULL SIZE PLANS, ILLUSTRATED STEP-BY-STEP INSTRUCTIONS AND PRE-FAB PARTS.

CLASS 1/2A

**BABY BARNSTORMER** $2.95

1/2 SIZE VERSION OF CHAMPION BARNSTORMER FOR 1/2A ENGINES - 23-1/2" WING SPAN - 118 SQ. IN. WING AREA. FLIES LIKE A DREAM ON 25' - 35' LINES. DOES EVERY STUNT IN THE BOOK.

## OTHER GUILLOW DIE-CUT BALSA FLYING SCALE AND SOLID SCALE MODELS


SERIES 10DC SCALE SHELF MODEL KITS.

F-86 SABRE, F-84 THUNDERJET, SE-5, P-47 THUNDERBOLT, P-40 WARHAWK, P-51 MUSTANG & FOKKER D-7. SPORT AIRPLANES: MONOCOUPE, PIPER CUB, CESSNA, AERONCA & STINSON **10¢ ea.**

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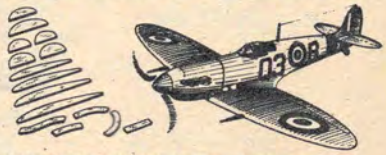
TISSUE-COVERED FLYING MODEL KITS. 10F SERIES - 8 MODELS - EASY TO BUILD - DO NOT HAVE DIE-CUT PARTS- 10¢ EACH

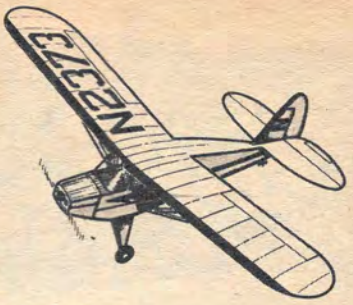
ADD 15¢ MAILING CHARGE TO ALL ORDERS.


TISSUE COVERED SCALE FLYING MODEL KITS

THE FORMERS, RIBS AND TIP OUTLINES ARE DIE-CUT FOR EASY CONSTRUCTION. THE PRINTED BALSA DIE-CUT PARTS ARE EASY TO IDENTIFY. **50¢ — $1.00 ea.**

## PAUL K. GUILLOW, WAKEFIELD, MASS.

# Model of the Month—Top Flite's Vagabond




**A guarantee-to-fly goes with each kit in Carl Goldberg's Jigtime Construction line**

■ The novice modeler is getting lots of attention these days—all the extensive prefabrication makes the life of the beginner a lot simpler. Some manufacturers have gone in for prefab rather recently, others have been working on it for years. One of the latter is Top Flite Models, Inc., and in particular, Designer Carl Goldberg. Carl has been studying the simplification of model structures for twelve years.

The latest offering of Top Flite to include "Jigtime Construction" is a new series of scale rubber models, first seen at the Model Industry Show in Chicago last February. So far, there are three types available, the *Piper Vagabond, Rascal 18,* and *Stinson Sentinel;* all are of 18" wingspan.

These kits are probably the ultimate in prefab, for they can be built with no tools except a coffee can key, and a small tube of glue. You don't even need sandpaper or a razor blade! Naturally, the three kits are intended for the novice builder, and Carl feels they are a logical step following ready-built models.

Before showing the models in public, they were first tried out on a group of youngsters, mostly 12 years of age or younger and with no previous building experience. It's interesting to note that non-modelers in the test group required from 2½ to 3½ hours to build a model, while those with some experience averaged only 1½ hours.

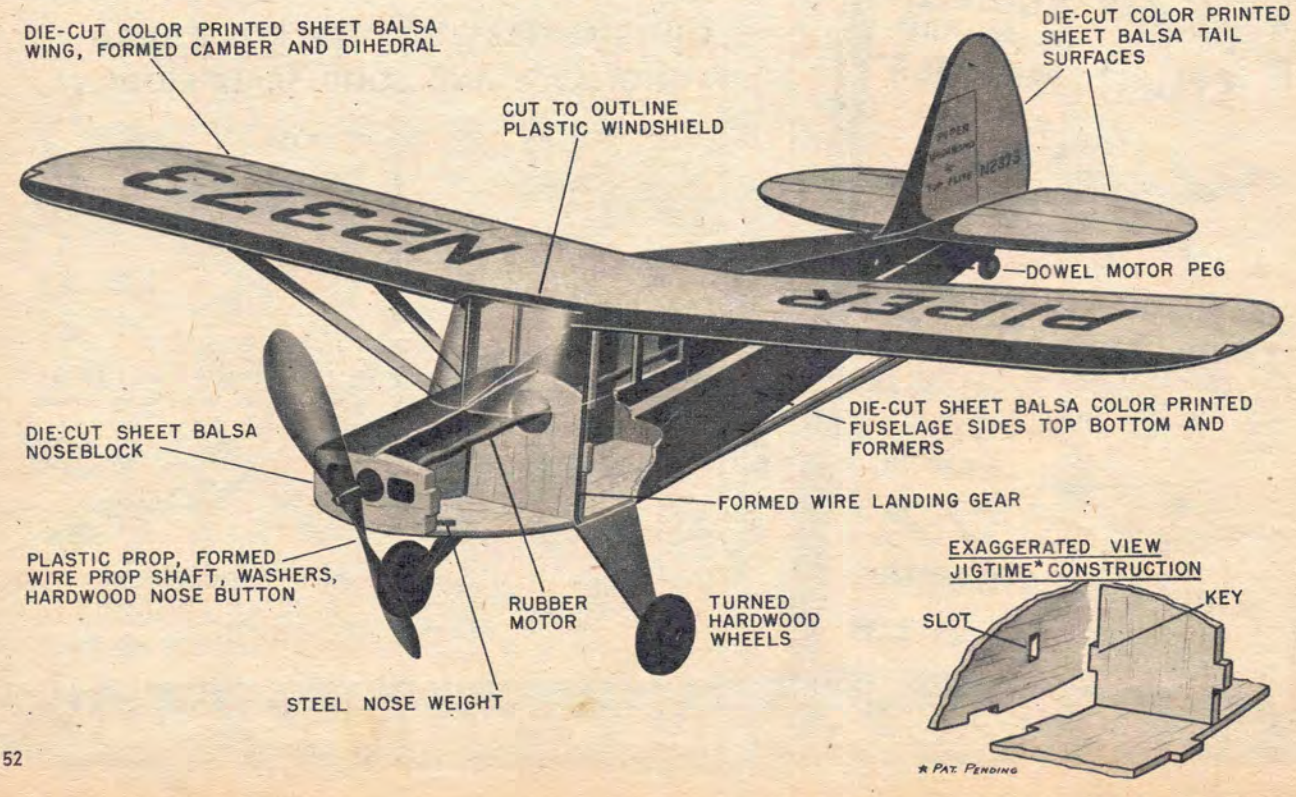
With all the simplification in these kits, the manufacturer still felt they shouldn't be made *too* easy; in other words, the job should require enough care and attention to retain the interest of the builder. It is felt that the balance is just about right for the 11-12 year old, or in fact, for the average non-modeler of any age.

Top Flite is very certain most of these new kits will be completed and successfully flown. With each kit there is packed a Guarantee Certificate; if the builder cannot obtain satisfactory flights, he is authorized to take the finished plane back to his dealer and receive a cash refund of the full purchase price.

We built up the *Vagabond,* and while it took just 1¾ hours from the time we opened the box until we were off to the flying field, we must explain that the parts and plans received a really careful scrutiny before work began. The plans are mainly in the form of step-by-step assembly instructions, each step accompanied by a simple and clear drawing. The *Vagabond* plans include 23 assembly steps. There is also a full-size detailed side view of the finished model, plus a set of flying hints.

The balsa parts of the model are furnished in two die-cut sheets, except for the wing which is cut to shape and already formed to the correct camber and dihedral. All balsa parts are colored so that the finished model looks like the real Piper. Small parts such as wheels, nose button, prop shaft and washers are in a glassine envelope.

Though we usually use a pointed knife to separate die-cut parts from sheets, we played fair on this job and used our fingers only. All parts came free nicely, and the projecting tongues gave no trouble. Of course, there were little (*Con't on page* 56)



Royal "Spitfire"

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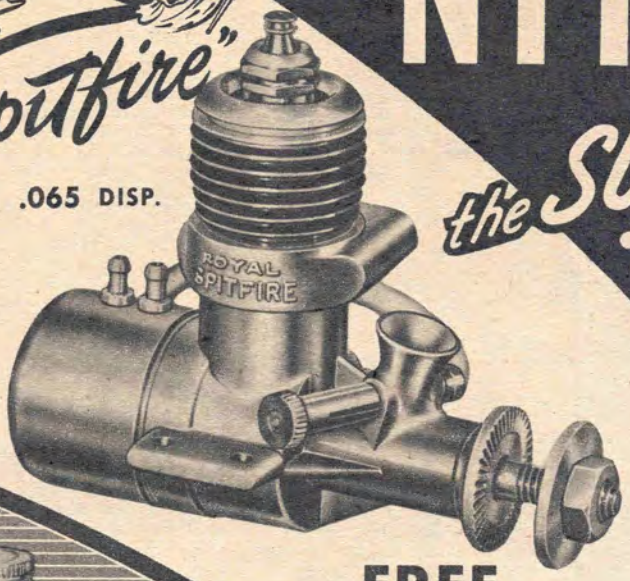


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A Pint of Power **95¢**

**MEL ANDERSON** *Manufacturing Co.*
1819 THIRD AVE., LOS ANGELES, CALIF.

# Flying Boats

(*Continued from page 40*)

very often straightens out as it circles back into the wind. You can see the advantage of using a wing tip for a float; it does not dig into the water as it hydroplanes along. In very high winds the model may make a figure eight taxiing in the water and take-off after you have given it up as hopeless.

We tried Frank Ehling's ping-pong-ball idea for stabilizer tip floats. The balls rotate to reduce water drag. They proved to be a bit too small for this particular model during gusty weather.

If your model turns out light, you can try the ping-pong-ball idea. It is an easy way out. But be prepared to replace them with the floats shown if you have "torque tipping" troubles which may occur.

Construction is on the strong side. This will give the model a long life and enable you to experiment. Start on the hull by cutting out 1/16" balsa sheet keel and bulkheads. Bulkheads have circular diameters so that you can draw the outline on balsa with a compass. Cement bulkheads to the keel. Check for perpendicular positions as the cement is drying. Start covering the hull by cementing 1/16" sheet on the lower portion. Be sure the hull is straight as you go along, or you will have planking troubles. It is advisable to cement the flat rear portions first, and then the front "V" part.

Next, cement the wing platform. You may have to trim curve "A" to fit. Sight from front and note if it has bulges outside of the basic diameter of other bulkheads. You are now ready for planking. Pick soft balsa. (We tried covering the top with sheet stock, but planking proved easier.)

Start at the top or center, and work down the sides. Planking overlaps the bottom covering as well as the wing rest. Since there are no compound curves, the planking is relatively easy. You may have to bevel the plank edges as you cover smaller diameters.

As planking reaches the ⅛" diameter dowel positions, provide holes through which the dowels can be later inserted and cemented against the bulkheads.

The nose block can now be roughed to an approximate shape. Before it is cemented in place, cut out the "balance weight" indentation. The final shaping should be done while sanding and finishing the hull after the rest of the model is completed.

The wing and stabilizer construction is sturdy. The assembly is straightforward until you begin to attach the cabin to the wing. It is easy if you follow a definite procedure. Start by cementing two light balsa blocks together with an ⅛" spacer between them. Cut to side view outline. Then outline the front portion with aid of the pattern given. Place the wing on the hull and "tack" in place with cement. Fit the cabin over it. You may have to trim the blocks to fit the airfoil shape. After the cabin rests properly on the wing, mark the hull curve at the rear of the cabin.

Cut cabin to curves provided by the pattern and hull. Shape to outline shown.

Motor nacelle or cabane is cut to outline from hard ⅛" sheet balsa. The streamline section behind the motors is from 1/16" sheet. Note direction of grain. If you use a Wasp engine, solder nuts on a brass strip which is then cemented behind the firewall.

Separate the cabin pieces and replace the spacer with the motor nacelle. Do all fine sanding on the cabin before cementing this combination to the wing. Attach it before the wing is covered. After the cabin is well set, cement the "B" outline to the leading edge of the wing. Then fit the "C" piece. Note that it extends from piece "B" to the cabin block. After the ⅛" sq. strip is cemented in front, you add the celluloid windshield.

Remove the wing from the hull, and make an approximate tissue pattern of the windshield. Note how the celluloid is cemented along the side of the rib. To provide surface for covering tissue, cement 1/16" x ¼" strips as shown on the plans.

Finish the hull by making the stabilizer rest. This is more or less a matter of fitting the "rest" so that the stabilizer will be lined up with the wing. Since both surfaces have similar dihedral angles, it should not be very difficult at all.

Cover wing and the stabilizer with light grade of tissue. When doping, remember that this is a Flying Boat model, and that the surfaces must not only be waterproof, but also watertight. Just how many coats of dope are needed will depend on the viscosity of the dope. After every coat of dope, check for warps. (A warped wing in a light breeze can start a taxiing turn which may cause a lot of trouble.) It is not advisable to use colored dope as it will add much weight. Use Trim-Film for decorations.

The hull should be first doped with a mixture of talcum powder and dope. Mixture should have a consistency of cream. Apply enough coats with a brush to cover the pores. Allow filler to dry well and sand after every coat. Then brush on several coats of clear dope. Use wet W/D sandpaper after every one of the coats. Cement the stabilizer to the hull.

The ping-pong float idea is good, but, as we mentioned before, the balls may prove too small during windy weather. When using the balls, extend axle tube beyond the ball so enough cement can be applied to make unit absolutely water tight.

The regular floats are self-explanatory. Dope until water tight. The wire can be bent to obtain correct distance of the floats from the hull, as well as the best planing angle.

This is a sturdy model, so do not be afraid to glide test it over high grass. The C.G. is approximately where shown, but the final spot should be determined by tests. Here is where the balance box comes into use. Use modeling clay and steel nuts. (It is doubtful that the model will be nose heavy.) Use clay to cover the top of the box. After a fair glide is achieved, the model is ready for water.

The model is not designed for tight turns so don't attempt them. The main object is to obtain a smooth water take-off. This means straight flights. Usually, once the model is in the air, it will assume a natural circle.

Pick a calm day for testing. If you like, you can hold engine power down to see how it behaves on the water. But for take-off you will need all the power you can get. Watch the action. If the model tends to "plow in," bend the float wires so that the tail will be lower. This will make the wing lift at a lower speed. Once the wing starts lifting, you are all set.

The large rudders are not effective until the model begins to move fairly fast. In the meantime, the left float has greater drag and will produce a left turn. To counteract this tendency, set the floats so that the front portions will point to the hull—a sort of toe-in condition. In operation, a left turn will decrease the effectiveness of the left float, and increase the effectiveness of the right one. Thus, the rudder effect of the right float will counterbalance the drag effect of the left float.

You can set the tip rudders in a similar toe-in position to take care of left float drag in a breeze.

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# Another Step
## ALONG THE WAY TO FINE STUNT

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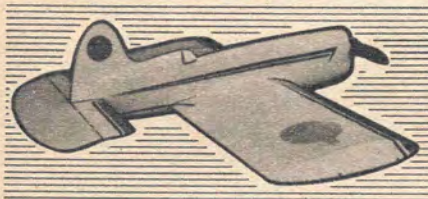

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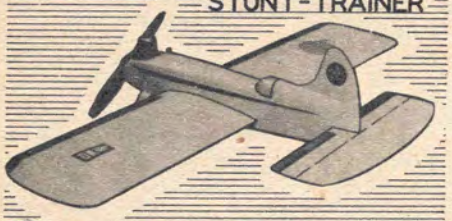

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# Vagabond

(*Continued from page* 52)

fibres of wood left on the parts here and there; if the manufacturer cut the parts completely through, he wouldn't have die-cut sheets but just baskets of loose pieces—it's these fibres that help to hold the sheets together.

As we've stated, this kit features Jigtime Construction, which really means that no jigs are required and you just can't go wrong in the assembly. All parts fit together with tongues and slots, which are so cut that you can't put pieces in upside-down or backwards. For example, the main fuselage former has two tongues on one side and only one on the other; the noseblock has a wide tongue on one side, and a narrow one on the other. How can you go wrong? The initial fuselage assembly consists of the two sides and former #1. When the rear bottom section is added, you have a well-aligned start.

Various neat little tricks are used to gain added strength where needed. For example, the cowl top and bottom are curved from side to side, thus adding greatly to strength, and enchancing appearance, too. The center bottom fuselage piece is cross-grain which makes it easy to bend, to conform to the fuselage curve in this area. Another little item of attention to small details is seen when you pick up the rudder. The grain runs diagonally, which means it is very unlikely that the rear portion will ever snap off.

As with the *Lil Rascal*, Top Flite's original Jigtime kit, the landing gear wire of the new series acts as a fuselage brace and strengthening member. It runs up past two formers and across under the wing, thus tying fuselage sides, the formers, and the wing together in a very sturdy unit. The neatly turned hardwood wheels are punched through the center, but the hole is a bit tight. We loosened it up by pushing through one end of the paper clip required later for installing the rubber motor.

The windshield and windows are all in one ready-cut piece and we found they fitted in place perfectly.

Each V-strut is made in two pieces, and while the wing would be amply strong without these braces, they certainly add to the realistic appearance of the model. As with all other parts of the kit, they fitted in place neatly and without fuss.

Construction was about over at this point and we had only to install the motor and 4″ plastic prop. Here that single "tool" required for assembly came into play. A search in the kitchen turned up a coffee can key, and sure enough, it would bend the prop shaft sufficiently for cementing. The hook end of the shaft is ready-formed.

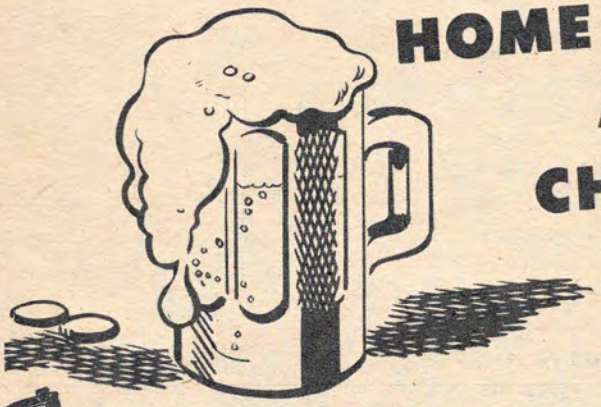
Threading the rubber through the fuselage with the paper clip proved simple, and the dowel that holds the rubber at the tail was slipped in and secured with a speck of cement.

Off to the test field (after checking the flying data given on the instruction sheet) for a trial flight. We learned that the balance point is directly in line with the apex of the V struts. Our model balanced exactly right; a metal weight is furnished in the kit, and is cemented in the nose of the model. Glide tests showed that the little *Vagabond* was trimmed satisfactorily as built, so the prop was wound and the ship launched. Top Flite's confidence in the model was immediately confirmed, for away she flew for 75 feet or so.

This model won't climb like a homesick angel or like a control-line "flying barn door;" but it *does* make flight after flight in a smooth predictable pattern that is calculated to worry the novice builder the least. The plans state that 200 turns is the maximum to be used with dry rubber, while if the motor is lubricated with castor oil or cold

(*Continued on page* 72)

# OF COURSE THERE'S A DIFFERENCE BETWEEN HOME BREW AND CHAMPAGNE!



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# Airline Hostess

(*Continued from page* 28)

wouldn't drop your coat where passengers would see it. Concern over passengers' comfort goes far beyond your personal habits. They don't anticipate accidents, but they plan a course of action, just in case. Hence emergency training.

Suppose your plane should make a forced landing. You must automatically instruct all women to remove high heel shoes, remove glasses, fasten seat belts; snap on the "no smoking" sign, and hand passengers blankets and pillows for face protection. As soon as the plane stops, send two men out the main entrance to hold the emergency chute down which your passengers will slide. You will slide down a chute yourself many times during school days. You must know how it operates, so you may reassure others.

Most of your work has to do with serving food to folks. You will handle mock buffet set-ups, delivering breakfasts and lunches and dinners to other students—real food to real people. You will unscramble jumbled sentences and find all the shapes possible in a conglomerate geometric figure. Soon the end will come, and if you live up to the superintendent's early estimate, you will proudly wear a neat tailored uniform onto a romantic job. You're in—but not yet permanently. For the first six months, you are on probation. Give good service, and the probationary period will merge into permanence.

One tip, Jean. Don't forget YIP. That's short for Detroit. Because you live in Ypsilanti, we think you deserve at least that little advantage over the girls from CHI.

Sincerely,
AT

# Kingfish

(*Continued from page* 45)

and speed models in particular when they began to appear shortly after the war. He could not get used to the terrific workout the little engines got in control jobs. But in helping others with construction and engine problems, a bit of control-line enthusiasm rubbed off on him and his *Sportsman*, a sturdy sport-trainer model, was built (Fig. 2). The ensuing trend in stunt model design to the awkward contraptions of a year so so back virtually drove Sadler into the field of speed models.

Unlike the freeflight models which were brought to perfection in a single ship, Sadler's progress as a designer of speed models has involved scores of models and slow refinement. His early low-wing arrangement (Fig. 3) evolved, through necessity, to midwings and finally to shoulder-wing designs. The current *Little Rocket*, (Fig. 8) also carried in Air Trails, is a masterpiece of compactness; a clean, functional design that can zip along at 150 miles per hour. Sadler's knowledge of flight trim, or rather his appreciation of its importance, has been to a considerable degree built into the *Little Rocket*. The ship possesses many refinements not immediately evident.

Looking back over a year or so of Sadler's efforts as a speed model designer, it is apparent that he has somehow managed to keep a step ahead of most of the competition. When convinced or "sold" on a certain aspect of model design he stubbornly perseveres, while retaining an open mind toward new developments. Advent of the glow-plug is typical; Sadler didn't warm up to the idea but tried it anyhow and quickly developed new model designs with all the compactness and light weight that the glow-plug set-up permitted.

After witnessing repeated take-off accidents by modelers using conventional "dolly" undercarriages, Kingfish de-

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vised his locking, two-wheel, drop-off gear. It effectively dealt with take-off problems until the newer shorter models came along. This was solved with a novel locking, three-wheel dolly.

The apparent ease with which he manages to continue to pull new ideas out of the hat is something his acquaintances now tend to take for granted. When some unusual or knotty problem is encountered, it is so easy to decide to "let Kingfish take a look at it." And the more challenging the problem, the more enthusiastically Sadler tackles it.

Nowadays Sadler has come to favor square wing tips. When we suggest other shapes he retorts, "The F-51 does all right." He would willingly adopt the elliptical or any other shape of tip if he could be shown any tangible proof of an advantage. Who knows, this may be the philosophy that keeps square tips on latest supersonic craft!

Kingfish is always pleased to hear of contest exploits of the modelers he has coached. Eddie Schwarz, Warren Tomme, Ray Shearer and Phil Laney all have won highest awards in the nation's top meets flying *Little Rockets*. They hold several national records. *Little Rocket* models have won high awards in Australia, South Africa and England.

"The Shop," Sadler's haven for modelers, is as distinctive as the Kingfish himself. No mechanic's dream, it nevertheless has the necessary hand and power tools for any phase of model building. The eleven-year-old *Pacemaker* hangs on the wall, still in flying condition. Sadler is likely to be found huddled over a new model with henchman "Doc" Warden. Models of various types in different stages of construction or repair crowd the work benches. Mrs. Sadler graciously provides tasty fudge or cold drinks. The spraygun compressor drones in the adjacent garage, an engine on break-in block roars away . . . Men at work!

# Space Men

(Continued from page 21)

moment. "That only has to happen once. If you didn't realize it before, you never forget again that a lot of guys worked hard to see that you got down all right."

The 'chute men at this station qualify hands down for his hard-working-guys classification. With an increasingly heavy schedule of assignments, many of them highly secret, their work day frequently runs from "can't see to can't see" instead of from 6 A.M. to 1 P.M., the station's formal working hours which were established to help beat the desert heat as much as possible.

Shoving the clock ahead does help some, but the jumpers have an even more effective heat antidote which is typically their own—making jumps into the Salton Sea, the station's own private ocean, only fifteen minutes away by air and the locale of water-jump problem research. Here, simulating actual water landing procedures, a man may make a drop and then climb out of his 'chute harness and into a rubber boat or life raft, since Unit projects include test and development of many different kinds of life-saving equipment.

"In the summertime," says one of them, "it feels like dropping into a wet muff."

A minor but interesting project of the Unit is to design and maintain special 'chutes used in the work of still another activity located at the El Centro station, one which trains officers and men to operate and service radio-controlled target drones. These are miniature planes used in shipboard gunnery practice. They look like over-size models, but they can turn up better than 200 knots. Operated by remote control, they take off from a special catapult like a scared rocket, dive, zoom and make passes just like full-size planes. At the end of a flight, the operator pushes a button on his control box and a parachute pops out of the fuselage to float the drone safely down.

El Centro air station is soon to be the parachute experimental center for all the armed services. This particular location was chosen for the same reason that the Navy originally selected it for its own Unit. No other place in the country is so well suited for such highly specialized work. There is little or no wind for most of the year, an important factor in 'chute testing. Elevation is sea level and below, a necessary condition if engineering calculations are to be completely accurate. Best of all, from the jumpers' viewpoint, the desert jump area is big, soft and free of cactus and boulders, a feature which they regard with deep affection. Even in the summertime.

"Our readers would also be interested in your opinion of the world situation, Sir."

# Power Model 3

(Continued from page 30)

the grain is vertical on them. The sides and these two formers are now cemented together to produce the basic fuselage assembly. Your accuracy here will be reflected through all the remainder of the fuselage job, so go slow and be certain the four parts are in perfect alignment before the cement sets. Lay one side flat on your table, apply cement to an edge of each former and set them in place. A few pins may be stuck in to keep them from shifting or falling over. Apply cement to the other fuselage side and lay it atop the formers. Now—before the cement sets—check what you have done with the greatest care, to make certain the two sides and two formers are correctly lined up. A small triangle or just an accurately cut piece of cardboard will help here.

Allow the above assembly to dry for a half hour or so, and meanwhile you can be cutting out the other formers. Note that #1, the nose block, is assembled from five layers of 1/16" balsa, cemented together with the grain of each sheet at right angles to the sheet next to it. This former should be built up and cut to the shape shown in the fuselage top view, before adding it to the fuselage.

Former #5 is made in a similar manner, but from three thicknesses of 1/16" balsa; the grain of the center layer should run vertically, while the other two layers are cross-grain. Cut it to the shape indicated on the top fuselage view, then punch the hole for the motor hook with a pin, and give both front and back several coats of cement, allowing each coat to dry for 15 minutes before the next is applied. Push the motor hook through and apply another cement layer to hold it.

Add former #4 to the fuselage next, followed by #5, and cement the tail end of the fuselage sides together. All these parts can be cemented at once; if the fuselage sides bulge too much at former #3, set the fuselage upright on the table and slide a couple of books up against each side so the former is held in place. Sight through the holes in the three large formers down to the tail, to make sure the assembly is lined up correctly from front to back.

Install former #1 last; the fuselage sides will have to be held together with books or other heavy objects while this cement job is drying. When all formers are firmly cemented in place, add the ⅛" sq. pieces to outline the fuselage top, and a piece of the same stock to support the cowling. The cowl is of soft 1/16" sheet and the three pieces that hold the windshield are ⅛" sq.

Pieces of ⅛" sq. are cut to fit across the bottom of the fuselage midway between formers #2 and #3, also between #3 and #4. These simply prevent the paper from pulling the sides together when it is doped. A piece of the same stock is cemented at the lower edge of former #2, and another 1¼" forward of former #5. The ¼" sq. crosspiece near the nose braces the nose wheel strut.

Add the dowels to hold the wing-binding rubber bands. Apply another coat of cement to each side of former #5, and also to front and rear of former #1 after it has been sanded to final shape.

The fuselage woodwork is now complete and you can cut the tail surfaces from 1/16" stock, sand them smooth and round the edges, then cement to the fuselage.

The nose wheel strut is cemented firmly to the rear of former #1 and is bound with thread and cemented in a small groove cut in the ¼" sq. member. The wire holding the two rear wheels is bent to shape and cemented just in front of former #3.

Few hobby shops have small lightweight wheels these days, and unless you can get suitable wheels from "5 and 10" store toys, you'll probably have

to make your own, as we did. We cut out four 1¼" disks from 1/16" balsa and cemented them together two and two, with grains at right angles. The nose wheel was made of three thicknesses. After drying, they were sanded to shape, then given a coat of cement all over, with special attention to the edges. A pencil point was forced slowly through the center with a twisting motion until we had a hole big enough to pass 3/32" outside diameter brass tubing, which serves as a hub.

If your hobby shop doesn't carry this tubing you can make a very satisfactory substitute from paper. Just roll a piece long enough to make all three hubs over a piece of your landing gear wire, after coating the paper with model cement. When dry, cut the resultant paper tube into ⅜" lengths with a razor blade, and cement one in each wheel.

To give the landing gear wires a little more "substance," without a noticeable weight increase, we slipped pieces of radio "spaghetti" tubing over the wires before the wheels were installed.

The propeller bearing is made of our old friend, the tin can, and held in place with tabs at top and bottom. Most hobby shops carry semi-finished balsa propellers, and one of these was used on the plane illustrated. The blade was left fairly thick, but the 8" rough-carved prop was trimmed down to 7½" length. There are no plastic props large enough for this model; if you have to carve your own, it's a good idea to make it from a wood heavier than balsa. Almost any straight-grained wood will do. The extra weight is not important as this model requires the addition of weight at the nose anyway, to achieve correct balance.

The wing is built in three sections which are fastened together at the correct dihedral angle. It's best to make a rought pencil outline of the wing on a board or sheet of Celotex, then cut the leading and trailing edges to fit. Cut each into the required three pieces before the ribs are cemented in place. Lay a sheet of wax paper over the board before you start wing assembly.

You will note that the wing edges are both cut to a more or less triangular cross-section. They should be rough-shaped before the wing is assembled. The front spar also tapers in thickness from ¼" at the dihedral break to 3/16" at the tip.

There are 14 ribs, the six center ones being all alike. Since the tip sections taper, the ribs here are all different. Actually, they have the same curve on top, but each one is trimmed at front, rear, and bottom, as required. You will note that the Bill of Materials calls for a balsa sheet 36" x 3" x 1/16", and another the same size but 2" wide. The large sheet is sufficient for fuselage sides and formers, and for the tail surfaces. For some of the other small parts including ribs and wheels, you will need extra 1/16" stock. If you have saved some from our previous model projects, use it here and don't purchase the 36" x 2" x 1/16" strip.

Cut all the #1 ribs to size, then bunch them together and smooth all six with sandpaper over a block to make certain they are alike. Cut and sand ribs #2 #3, #4, and #5 in pairs. Cement the ribs to the wing edges, but leave out the ribs that come at the dihedral joints. Insert the wing tips at this time.

When the ribs are thoroughly dry, lift the tip assemblies from the wax paper and sand the spar ends so they fit flush with the center section spars when the wing tips are raised 2¼". Cement the tips in place and add the dihedral braces at the same time. The two missing ribs can also be inserted together with the gussets at their trailing edges.

When all wing joints are thoroughly dry, the ⅛" sq. top spar can be installed. This completes the frame, but

it must be sanded to remove all rough edges, points of glue, etc. Round the tips and finish forming the leading and trailing edges at this time.

Cement the celluloid windows and windshield in place, then cover the fuselage top and bottom with lightweight paper, with grain running fore and aft. Leave an opening just ahead of former #5 on the underside, and also leave the paper off between former #1 and the ¼" strip. Cover the wing top with five separate pieces, one for the center, one from each break to the tip rib, and one on each tip itself. Only three pieces are needed on the underside.

Spray the wing *lightly* with water—an ordinary atomizer or a small insect sprayer is good for this. Also, spray the fuselage paper, but try not to get the water on the wood surfaces. When the water has dried, give the entire airplane (all wood surfaces included) a coat of half dope and half thinner. Apply another coat when the first has dried.

Now is the time to decorate. We used Trim-Film for decorations on the test model. It is wise to coat the film with 50-50 dope to prevent it from peeling off. The decorations don't add to the flying qualities, but they certainly add "eye appeal"!

The motor consists of six strands of ⅛" T-56 flat rubber and is threaded into the fuselage exactly as was the case with the preceding semi-cabin model in the series. At this time you can also add lead, cemented to the rear of former #1, until the model balances at about the point indicated on the fuselage side view. Then finish covering over and doping the fuselage bottom.

Follow the usual routine of glide-testing over tall grass until you get a smooth flat glide with no dips whatever. Then you can try a power flight. We found the model flew well if adjusted to circle to the left; a slight rudder twist was sufficient to produce

the required circle. The motor can be wound safely to 170 turns for really exciting flights. Needless to say, the little plane will make beautiful take-offs with its tricycle gear, and will land nicely too, if flown over a smooth area.

*Building Time:* 6 to 7 hours, exclusive of decorations.

*Materials Required:* 36″ x 3″ x 1/16″ soft balsa (fuselage sides, formers, tail surfaces). 36″ x 2″ x 1/16″ soft balsa (or use scrap 1/16″ stock). 36″ x ¼″ sq. medium balsa (leading edge). 2 pieces 36″ x ⅛″ sq. medium balsa (top wing spar, fuselage material). 36″ x ⅛″ x ¼″ medium balsa (trailing edge, dihedral braces). 7′ ⅛″ flat rubber. 18″ .045 (or 3/64″) diameter music wire. 2 1¼″ dia. wheels. 1 1″ wheel. 2 brass washers for prop shaft. 1 8″ semi-finished prop. 1 tube medium fast drying cement. 2 oz. clear dope. 2 oz. dope thinner. 1 sheet Silkspan—lightest grade. Celluloid strip 10″ x 1½″ x .008″ thick. Tin for prop mount. Wire solder for balancing. 4″ ⅛″ dia. dowel (or two large-size kitchen matches) to hold wing rubber. 1′ 3/32″ dia. radio "spaghetti" to cover landing gear wires. Trim-Film, or other decoration materials as desired.

*Tools Needed:* Modeler's knife (or sharp penknife). Single-edge razor blade. Long nose pliers. Soft brush 1″ wide. 3 doz. T-head pins. Medium and fine sandpaper.

## Round-Up

(*Continued from page 47*)

contest will be held in September this year. A very wise move to fill a void in contest activity and not interfere with the eliminations to be held in the spring. This contest is for teams of five, and the times of all team members are totaled for final results. This type of meet makes everyone responsible for his buddy's showing, and the cooperation between team members is amazing.

The *Long Beach Thunderbugs'* junior program is coming along fine. There are now five adults who have taken juniors in tow. The object is for each adult to select a junior and teach him all he can about models, make available any surplus engines he may have lying around, and haul him to contests. You'd be surprised how soon the fellows catch on. One of these lads took high time of the day last month at Taft with the help of Jack Oxley. How about the rest of you clubs? You have some potential winners around?

The *San Diego Airliners* have undertaken a large program. It is their aim to appear at various places and put on shows for benefits and underprivileged children. In less than a month so far this year they have staged shows at the San Diego Mission and at Anthony Home. The delight these children take is quite apparent in their faces. It is a great pleasure to see the joy with which they watch the models fly.

The first attempt by the *Inglewood Flight Masters* to have a scale free flight contest was a rousing success. So much so that they have decided to make this event an annual affair. For judges they had men from the historical branch of the Institute of Aeronautical Sciences, fellows who really know their scale jobs. Details on how the ships were judged are missing, but they must have had some beautiful ships entered, for we find Bill Tharp, a man who places high at the Nats, way down in ninth place. Louis Culler's Piper Cub Cruiser finished in first place well in front of the second-place winner. His ship totaled 90 points. Thomas Protheroe and his Stinson L-5 was second with 77 points, while R. Seifreid's Focke Wulf Stosser amassed 67 points to barely nose out A. R. Rasmussin's Stearman PT-17.

The *High Tailers* held their monthly contest at Fontana Airport for free flight gas with all classes combined. Hal

Roth totaled seventeen minutes to win first with a Zeeben. In second place was Russ Johnson with ten mins., while Chick Jones pulled down third with nine.

The Northern California Free Flight Council has scheduled meets for June 24 and September 16. The meets will probably be held at Sacramento since the field at Tracy has been leased for hot-rod and drag races. The Sacramento field is the only one left where they can really let them go and still chase. Dethermalizers are a must there.

They have two trophies for rubber, one open for juniors, no processing and any size model is eligible. For gas, they have trophies to 4th place. They fly under twenty-second motor run, five-minute limit to flights, type of launching optional.

For the year 1951 they have recently elected Hal Summons President, John Lenderman, Secretary, and Tom Moore, Publicist.

"Pop" Robbers, Secretary of the Western Associated Modelers, which is primarily a control line club, really knocks himself out when it comes to publicity. For example, minutes of their last meeting are a three-page mimeographed affair taking care of everything; his annual report is seven pages long. It is a swell job; Mom and Pop must have spent weeks getting it out.

Their last meeting was a dinner affair with 114 attending. As honored guests they had (take a note, fellows) Mr. James D. Ryan, Recreation Commissioner of Martinez, and Mrs. Ryan, Mr. W. B. Knowles, Superintendent of Martinez Public Schools, and Mrs. Knowles, and Mr. Ben Griffante, President of the Alhambra Alumni Club and Mrs. Griffante. This is a very good way to impress the local VIP's with the intent and seriousness of model building.

Mr. Burton Wood of the *Pittsburgh Cloud Busters* presented his beautiful novice and beginner trophy to Mr. Underwood of the Martinez Aero Modelers, and since they were tied with the *Cloud Busters*, at the end of three months the trophy will go over to the *Busters*. Howard Puckett of the *Sky Rogues* presented the Speed Championship award to the *Alameda Aero Modelers* and the Stunt Championship to the *Stockton Gas Model Association*.

The following officers were elected to hold office for the WAM during 1951: President, W. J. MacKerracher of the *Frisco Hi-Hatters;* V.P., J. Everett Underwood of the *Martinez Aero Modelers;* Secretary Treasurer, Harvey S. Robbers Sr. of the *Sky Rogues*.

—DICK EVERETT

## Mobilization

(*Continued from page* 16)

fine. But main dependence for recognition will be through interceptor stations after the filter centers have reported an unknown in the air.

Just the same, models and model displays in recruiting office windows will help create interest in this work. The recruiting is done by local Civil Defense officials for the Air Force.

**Flying cadets** in the Air Force will be enlisted rather than just on a cadet status. Under the old system, cadets who washed out of their flight training could leave the service. By enlistment, they are now held till their hitch is over, like other airmen.

Male officer candidates in the Air Force also are now to be chosen from the enlisted airmen in service or in Reserve or Air Guard units, rather than civilian life. WAF officer candidates still may be chosen from civilians.

Air ROTC graduates, numbering some 8,500, are being called to duty as Reserve 2nd Lieutenants.

—KENDALL K. HOYT

# Air Adventurers

(*Continued from page 29*)

some existing club if desired, rather than separately.

2. *Model Building.* The Air Adventurers Club is not a model program. Rather it makes use of models as the best means short of flight itself to teach how an airplane flies. This work is required in the early stages; later it becomes optional. The A-A Club gives its members their start and from there they can go as far as they like.

Theories, deadly dull if merely read in a book or drawn on a blackboard, come to life if studied in working models.

3. *Flight Theories.* At the same time, model building may be of limited benefit unless the question "why" as well as "how" is answered at every point.

Anyone with patience may follow directions in putting a model together, and maybe it will fly.

Every model has something to tell you if you will be patient and learn.

4. *Imaginary Flight.* Beyond the models and what makes them fly, the A-A Club translates every piece of new knowledge into terms of airplane flying.

Step by step, the member lives in his mind's eye the thrilling experience of starting the engine, taxiing onto the field, and taking off.

Future pilots thus can prepare for the real thing. To those who do not later fly, a knowledge of aviation is a "must" in the modern world. It can't quite be grasped without some of the feel of flying.

In those four ways, the fledgling member who enters the Air Adventurers Club as an "Airman, Apprentice Class" begins advancing from the very first of the A-A Manuals. He—or she—is advised to share the adventure with others and plan to start a club.

A simple cardboard model is first

# Full-Size Plans

#651—Stits Junior; Half-A Flying Boat; Douglas AD-2 Navy Carrier event winner.

#551—Fleet U-Control scale; Balsa glider trio; Clipper Chisai PAA-Load model.

#451—AT Interceptor; PAA Cargo Carrier; Whee-38.

#351—Matthews' Crowbar PAA-Loader f.f.; Beck's Petit Pete A/2'er; Ehling's Wakefield.

#251—Ole Slippery team racer; Li'l Lightning; Uniliner; Javelin glider.

#ATA-51—F82 twin-engine U-Control scale; Bellanca Pacemaker; Easy-Bo free flight.

#151—Reinhardt's stunt winner; Little Twister free flight, Semi-scale Bellanca; Sopwith Dolphin.

#1250—Heath Parasol and Mid-wing; Hi-Pressure Pete stunt job; Miss Quito free flight; El Dobo rubber.

#1150—Wee Bee scale free flight and U-Control, DeHavilland Moth; Screamliner "60"; Kinglet.

#1050—Delanne semi-scale Duo-Mono; Strato Flash free flight; Buhl Pup; Peppy U-Control.

#950—Pitts-Skelton aerobatic bipe; DeHavilland twin-engine Comet; Little Senator A/2 free flight.

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made and flown, as outlined in the March issue. The steering of a plane is demonstrated by it. Then comes the story of what makes it fly. Then the beginning of the imaginary flight which may turn into a real one.

After passing an exam on the fairly easy first manual, the member becomes an Airman, Third Class and gets a second manual. This calls for building a simple balsawood glider; flying it; and learning more of the theory.

In the next step, as Airman, Second Class, the member builds a model from a balsa framework, glued together, and powered by a rubber band which turns the propeller. After this experience with modeling materials, tools, drawings, and methods, the member is ready to tackle more advanced models which a beginner can easily botch.

That is what we mean by a step-by-step program. The beginners are not necessarily young people. Many applications have come from men of mature years.

But, as A-A Manual #1 points out, if anyone is learning to spell, the first step is to learn the alphabet. Adults who can't read must start the same as the youngsters.

The same applies to aviation. Begin at the beginning! Join the Air Adventurers today and be among the first to gain the higher ratings.

## Stits Jr.

(*Continued from page 37*)

across. It will be necessary to gouge out the sheet slightly to clear the rear landing gear "J" bolts.

Cement the bottom cowl block in place and carve to shape, checking the front view for cross section. Temporarily mount the engine in place and add the lower portion of the nose block, hollowing out where necessary to allow for engine clearance and engine removal.

The top portion on the original is removable for easy access to the powerplant; small dress snaps may be utilized. Another method is to hold the top cowl to former 1 by means of a 2:56 nut and bolt with the nut cemented to a plywood half former inside the cowl and the bolt passing through former 1. This last method works very well because the cowl section between formers 1 and 2 is also removable, this facilitating easy access to the bolt and the balloon tank used because of its fool-proof operation and light weight. This tank hatch should be carved from very soft balsa and be hollowed out slightly.

With the engine removed but with the removable blocks in place, go over the entire model with fine sandpaper. Cover the wing with heavy paper and add the 1/16" plywood and plates. Water-shrink the paper and apply several coats of clear dope. All exposed wood surfaces including inside the cowl and the cockpit should be given a few coats of wood filler and sanded smooth. Add the windshield frame. Apply white dope forward of the color line as indicated on the side view, and blue to the rest of the model with the exception of former 3 which is the instrument panel, and former 4. These two formers are light brown. Add the windshield and cockpit enclosure before applying the last coat of colored dope. License numbers and the striping were done with white Trim-Film. All lettering was made with striping white because of its one-coat-covering qualities.

The shock absorber detail is added last, and the entire model given a coat of fuel proofer. Install the engine and then hook up the 10¢ size toy balloon used as a tank as follows: attach a length of fuel line to the needle valve body, bringing it through former 1 and the crutch. This piece of the fuel line is then joined to the balloon tubing by a short length of metal tubing. To fill the tank disconnect it at the tubing joint

which should be inside the hatch, instead of at the needle valve as is customary.

### Bill of Materials

*(Because sheet balsa is usually cut in 3′ lengths, wood sizes and quantities are listed accordingly.)*

1 pc. ¼″ x 1″ hard, trailing edge. 1 pc. ¾″ sq. med., leading edge. 2 1/16″ sheets hard, ribs, wing tip fill-in pcs., fin core and formers 2 and 4. 1 1/16″ sheet soft, sheet covering. 1 ⅛″ sheet hard, fuselage crutch and elevators. 2 ⅛″ sheets med., stabilizer, former 3 and bottom fuselage covering. 1 ¼″ sheet soft, fuselage sides. 1/16″ plywood, end plates and tail wheel mount. ⅛″ plywood, landing gear and bellcrank mounts and rudder. 3/16″ plywood, former 1.

1 pc. 1⅛″ x 3″ x 5″, tank hatch and engine cowl. 1 pc. ¾″ x 3″ x 4⅛″, lower cowl block. 1 pc. ¾″ x 1″ x 2⅝″, oil scoop block. 1 pc. ½″ x 2″ x 2¾″, front nose block. 1 pc. 3/32″ dia. wire, landing gear. 1 pc. 1/16″ dia. wire, push rod, windshield frame and tail wheel strut. 1 pc. 1/32″ dia. wire, lead-outs. 1 pc. ⅛″ x ¼″ x 9¼″ hardwood, elevator spar. 1 pr. 1¾″ dia. Banner wheels. 1 ¾″ dia. tail wheel. 1 1⅜″ dia. spinner. 1 3½″ bellcrank. 1 large size control horn.

Heavy celluloid, "J" bolts, wood filler, clear dope cement, colored dope, Trim-Film, fuel proofer, toy balloon, cloth hinges, 12″ of 1/16″ dia. black elastic thread, masking tape, etc.

## Russia

*(Continued from page 23)*

ships are unknown but, as the reduction of the Atlantic Pact Powers' naval supremacy in the North is one of Russia's most serious concerns, there can be little doubt that serious effort will

be expended in evolving suitable carrier-borne jet aircraft.

The recent transference of all strategic bombing to Naval Air Arm has already been mentioned, and while there may be no extra significance in this move, save that the Air Force will now concentrate purely on tactical aviation, the transfer may well tie in with the increased naval activity, particularly with regard to the large submarine forces that are being built up. These long-range aircraft, the majority of them Tupolev Tu-4s, could conceivably be in process of grooming for a combined air-submarine assault on the shipping lifeline of the major Western bastion in Europe, Britain.

### Fighter Aircraft of the Soviet Air Force

A percentage of current Soviet Air Force equipment still consists of piston-engined tactical fighters built toward the end of and since the war. Doubtless these will shortly be wholly replaced by the newer types already in service or under development but, at the moment, they still represent a major threat since though they are outdated in the main by Atlantic Pact equipment, the limited air strength of the Western nations could easily be totally engaged by the newer Red jets, leaving the piston-engined types free and unharried to continue their direct support of the ground forces.

The use of these piston-engined fighters in co-operation with armored and tank formations reached a high degree of efficiency during the last war, and the fighter-attack aircraft were given their orders in the air by R/T direct from the commander of the tank unit engaged.

The number of machines used by the Russians in this way naturally depends on the tactical air and ground situation, but a typical example of Russian wartime ground co-operation formations (one that is still in use) is a squadron of eight aircraft of which one pair or *Para* (a) flies between 1,300 and 5,500 feet, one flight of four airplanes, of a *Zveno*, flying between 6,500 and 10,000 feet, and one *Para* (b) flying between 6,000 and 12,000 feet. The first *Para* and the *Zveno* would remain over the tanks while the second *Para* patrolled the surrounding area with the task of spotting approaching hostile airplanes which would be intercepted by the *Zveno;* the scouting *Para* itself would remain in reserve unless the situation became serious.

Ground attack and tactical bombing formations operating by day are always provided with fighter escorts; the strength of the escort formations varies but as a general rule a ratio of 1:1 is employed. Typical fighter escort tactics by a Fighter Regiment operating at full strength (four squadrons of twelve airplanes each) are: the first and second squadrons each fly their *Zvenos* in finger fours, line abreast of line astern, forming assault squadrons, responsible for the immediate destruction of hostile formations. The third squadron operates as medium-high cover to the assault squadrons, while the fourth squadron operates as top cover and reserve.

Throughout combat Soviet fighter pilots are instructed to try to retain *Zveno* formation, and free-lancing or unwarranted breaking of formation results in a court martial for the "*deviationist.*" Although jet fighter formations and tactics are probably still under development, the considerable success experienced by the Reds with these patterns will probably influence future developments.

Present first-line piston-engined fighters are the Lavochkin La-9 and La-11 and the Yakovlev Yak-9P single-seaters. Both the Lavochkin machines are low-wing tactical fighters each powered by a 1,850 hp ASH-82FNV radial engine, the La-11 being a cleaned-up, slightly smaller machine with a top speed of about 410 mph—over ten mph faster than the earlier La-9. Armament

of the La-9 consists of two 12.7-mm *Beresin* machine guns and one 20-mm *Sh-VAK* cannon, and that of the La-11 is three 20-mm weapons. The Yakovlev Yak-9P is powered by a 1,600 hp VK-107A in-line engine which affords a maximum speed of approximately 370 mph, and has an armament of machine guns and cannon similar to that carried by its radial-engined contemporary, the La-9.

Other variants, such as the Yak-9D, Yak-9T and Yak-9U differ in powerplant and armament details, but the Yak-9P is the last production version to enter service.

Soviet jet fighter designs have proved exceptionally prolific during the past five years and jet fighters are being produced in greater quantity than any other combat type. We now know sufficient of Russian post-war fighter design to be able to trace with some clarity the progress made in the Soviet Union with this exceedingly important combat airplane type since the importation of the first comparatively well-tried turbojets from Germany.

The Soviet's immediate postwar need was jet fighters, and the haste with which the Russian designers set about fulfilling this requirement is evidenced by the crudity of their early designs. Nevertheless, however crude, these early jets provided the means by which a reserve of jet pilots could be accumulated against the day when better equipment would be rolling off the assembly lines. That day came in 1948 when the first MiG-15s were delivered to crack Fighter Regiments and the Western Allies are fortunate in having made the acquaintance of this new Soviet fighter only gradually and on a modest scale over Korea. The appearance of this ultra-modern fighter in quantity service should serve to warn us of the danger in underestimating the technical abilities of our potential enemy.

The first two jet fighters to enter service were the Yak-15 and MiG-9, from the drawing boards of Alexander

Yakovlev, youngest Soviet top-line airplane designer, and the Mikoyan-Gurevich team respectively. Appearing some months before the MiG-9, the Yak-15 announced its birth during the Aviation Day Flying Display at Moscow in 1946 by flitting across that particularly interesting strip of Russian sky over Tushino airfield, much to the gratification of the assembled Muscovites.

Initially, the Yak-15 was intended purely as an interim type to furnish pilots and ground crews with jet handling experience. Indicative of the haste with which Yakovlev prepared his design is the fact that the well-tried tubular steel fuselage and mixed steel and wood wing of the Yak-9 piston-engined fighter were used without any major modification, but the forward fuselage section was redesigned to accommodate an underslung Junkers Jumo 004B jet which exhausted below the wing trailing edge.

In order that production should not be delayed by other than vital changes to the original Yak-9 airframe, tailwheel type landing gear was retained, Yakovlev merely increasing the stroke of the main wheel legs to allow adequate clearance for the underslung turbo-jet. One wonders how frequently the Reds replaced the tailwheel—sitting in the jet stream during all ground running.

Use of the tailwheel created an all-time low in pilot visibility for take-off but, apart from its many faults, the Yak-15 provided a compact and useful interceptor fighter in the shortest possible space of time and simultaneously provided a much-needed implement for domestic and foreign propaganda. Among the smallest jet fighters in the world—spanning only thirty feet—the Yak-15 retained some of the nicety of handling associated with its piston-

*(Continued on next page)*

## Vagabond

*(Continued from page 56)*

cream, you can cram in 300 turns.

Upon looking over the finished model critically, it is surprising how close to scale it actually is. The wheels are set well back near the leading edge of the wings, as they are on the real plane. The landing gear is short and the prop small, again very scale-like. The designer *could* have used a 6" prop and a long ungainly landing gear as seen on many so-called scale models. He chose, instead, to follow the big ship closely. Even the dihedral is very moderate, although we found it ample for complete stability. In short, Top Flite's *Vagabond* looks remarkably like Piper's Vagabond.

We can attest that it flies reliably and feel very doubtful that many of those Guarantee Certificates will be sent back to Chicago.

# Russia

(*Continued from page 72*)

engined forebear (readers will no doubt recall that the Yak-9 could out-turn the very maneuverable Focke-Wulf FW 190) and its low wing, span and power loadings made for a high degree of maneuverability.

Armament was deficient by modern standards, consisting of one 20-mm *Sh-VAK* cannon and two 12.7-mm *Beresin* machine guns, and performance was not spectacular, maximum speed being approximately 505 mph, with a cruising speed of 370 mph.

After the completion of the first batches of Yak-15s, a modified version was placed on the production lines towards the end of 1947, incorporating many improvements dictated by squadron operating experience with the first production machine. This later development, referred to as the Yak-15B, is widely used by the Soviet Air Force, although it is likely to be replaced by later machines in the very near future. However, as the ex-S.A.F. airplanes will probably be handed on to the air forces of the satellite countries, the Yak-15B is well worthy of note.

The main undercarriage members of the later production model are identical to those of the original Yak-15, but a nosewheel assembly replaces the tailwheel used earlier. The nosewheel retracts into a large bulged housing under the jet intake and a small tail bumper is fitted in a similar position to the old tailwheel. The characteristic curved outline of the vertical tail surfaces, seen on all earlier Yakovlev fighters, has given place to more angular contours, and armament is now two cannon of 20-mm or 30-mm caliber.

While Alex Yakovlev was preparing his Yak-15 for production, the well-known design team of Mikhail I. Gurevich and Artem I. Mikoyan was working on what was to be the first successful Russian fighter to be designed from the outset for jet propulsion. This airplane, the MiG-9, was a midwing monoplane with twin turbo-jets slung under the fuselage nose. Of all-metal construction, the MiG-9 was powered by two M-003 axial-flow turbo-jets (based on the German B.M.W.003) which exhausted together past a channeled rear fuselage. A heavy armament was fitted, this varying between machines but normally consisting of a combination of one 43-mm gun and three 20-mm guns or one 30-mm gun and a combination of 20-mm and 12.7-mm weapons.

Spanning 34 feet, with a length of 32 ft. 9 ins., the MiG-9 proved to have a quite exceptional performance for its time (late 1946), maximum speed being 595 mph at low altitude and cruising speed being approximately 450 mph.

Summing up, the MiG-9 is a simple, sturdy, hard-hitting machine in the best

Soviet Air Force tradition—it was certainly considered good enough to warrant the award of a Stalin Prize (1st Class) to its designers in 1947. The MiG-9 is widely used by the S.A.F. for ground attack and low- and medium-altitude fighting and is, perhaps, the most numerous of the jet fighters at present flying in Russia.

Another important Russian fighter designer, Semyon A. Lavochkin, appears to have had rather less success than his compatriots during the immediate postwar years. More orthodox in approach, Lavochkin's first jet fighter, the La-15, followed hard on the heels of the MiG-9 but teething troubles are reputed to have precluded large-scale production. Bearing a marked resemblance to the Me 262 Sturmvogel, the La-15 was powered by two M-003 turbo-jets mounted outboard and underslung on the wings. A heavy armament of 20-mm and 30-mm cannon was installed in the nose, suiting the machine for close-support work, but it is not thought that more than a couple of units were ever equipped with this type.

Comprehensive research undertaken from 1945 onwards resulted in the realization that the swept-wing layout is synonymous with near-sonic performance. Additionally, it was perceived that specialized single-purpose fighters (radar-equipped night and all-weather fighters, target-defense interceptors) were vital if the Soviet was to achieve technical parity with the U.S.A.

In May 1947 came the first reports of successful flights of a Russian research airplane at Mach 1 and over. As with any other news item from Soviet sources, this announcement was viewed with some skepticism by the Western world. Later reports mentioned the existence of a swept-wing high-speed research airplane appearing in the 1948 May Day Air Parade near Moscow. Many assumed that this machine was the sonic flyer; its advanced layout certainly lent credence to the earlier reports. However, it now seems im-

probable that this *was* the machine with which the Reds first reached Mach unity. Reference to the illustrations of this research airplane (the most accurate yet published and based on a series of telephoto films) reveals the extent to which Soviet sonic probing had progressed in the winter of 1947-48.

This aircraft has been frequently referred to as a variant of the German DFS 8-346 supersonic project but, in the light of the latest photo evidence, there seems little to support this contention. It is common knowledge that the Russians took special care of the Siebel plant at Halle—the company entrusted with the construction of the DFS 8-346—and this fact, together with a vague similarity of wing plan and empennage no doubt led to the conjecture that the Soviet airplane and the German project were related.

The designer of the machine is unknown but the aircraft is undoubtedly a post-1945 design, and the research program carried out with this machine has probably materially influenced the design of Russia's latest jet fighters.

While such research airplanes were being built and evaluated, new and improved equipment was developed for the Soviet fighter groups. However, these craft represented little other than a passing phase in Russian high-speed design thinking and, although displaying many notable improvements, they showed no radical innovations.

One of these intermediate types that did enter limited production was a fighter frequently referred to as the "Red Thunderjet" owing to its passing similarity to the F-84. Believed to be designated Yak-17, the design shows that Yakovlev was not slow to assimilate Western jet fighter trends. A straightforward, single-jet machine, this fighter represented a different class than the F-84, being considerably lighter, perhaps more maneuverable and simpler to maintain, but with less power, range and speed. Of good aerodynamic form, the Yak-17 was a long-wing cantilever monoplane with divided nose intake feeding a single axial-flow turbojet which exhausted through a duct in the extreme tail. The pilot was seated well forward over the nose, and a nose-wheel undercarriage was fitted. A version of this airplane with swept wing and tail surfaces is known to exist and it is believed that it was this machine that was much publicized about twelve months ago.

Another fighter making its appearance at about the same time was a small "pod-and-boom" fighter which has been referred to as the MiG-11. Appreciably more rotund than the earlier MiG-9, the MiG-11 has not been reported in service and may well have been dropped in favor of the later swept-wing designs. A shoulder-wing of small area and span, the machine was almost certainly powered by a single axial unit placed in the fuselage belly below the pilot.

Included in Russia's postwar booty of Luftwaffe equipment was a quantity of Junkers Ju 8-248 target-defense interceptors. The Reds were quick to grasp the inherent possibilities of the rocket interceptor and some two and a half years ago Lieut.-Col. Grigori Alexandrovich Tokaev, one-time member of the Soviet Air Force's investigation staff in Germany who fled to Britain, stressed the concentration with which the Soviet Union is developing this type. His statement has been borne out many times by reports to this effect from behind the Iron Curtain, and the description of the Soviet machine that is claimed to have exceeded Mach 1 some years ago tallies with what is known of the Russian development of the Junkers Ju 8-248.

Reportedly developed by Alex Yakovlev's design team, in collaboration with the ex-Junkers organization that was moved lock, stock and barrel East of the Iron Curtain, and designated Yak-21, this target-defense interceptor may by now be in production, test

machines having been delivered to experimental units of the *Protivovozdushnaia Oborona* (P.V.O.), which is the force responsible for the internal air defense of Russia and consists of fighter regiments, early warning radar units, an observer corps organization, A. A. and searchlight defenses. Presumably, Yak-21s would be based close around the heavy industry areas west of the Ural Mountains, within striking range of American and British heavy bombers.

The Junkers Ju 8-248 (or Me 8-263) was a much-improved development of the Messerschmitt Me 163 Schwalbe, used by the Luftwaffe in a last-ditch attempt to stave off our aerial death blows, and the Yak-21 differs from its German forebear primarily in having a tailplane mounted high on a large-area fin and rudder assembly. Powerplant is a development of the Walter HWK 509C liquid fuel rocket developing some 4,500 pounds thrust. It is improbable that Yakovlev, or his German colleagues, has succeeded in raising flight endurance much above 15-20 minutes. The question of whether or not this limited combat duration warrants their production in quantity can only be decided by their operational shake-down. With a speed of around 670 mph and a climb rate of something like 12,000 feet per minute, the Yak-21 should have little difficulty in reaching and intercepting the fastest and highest flying bombers.

In an article to follow we shall examine in detail the much-publicized MiG-15 as well as other swept-wing interceptor fighters.

# Navy Carrier Model

(*Continued from page* 32)

speed is 56 mph with a 12/8 Top-Flite propeller.

Because of the requirements of the Navy Carrier Event, the model was designed very much on the rugged side and as a result construction is heavy and fairly complicated. The model is not a beginner's trainer, but some simplification of structure could be achieved if scale flying only were to be done.

Complete instructions for building may be found on the full-size plans available from Air Trails.

"Hap" the Hot Pilot is just about the right scale for the Skyraider, and he can be duded up with a helmet and oxygen mask if desired. The bubble canopy is another part from the Miniature Aircraft's F2G kit, and is close to scale for the Skyraider.

Two-speed ignition system can be installed now if to be used. Follow instructions supplied with Jim Walker's Remoto control handle, or Deco 2-speed accessories. Trim-Film decal sheets were used for making insignia.

(*Continued on page* 82)

# K & B Torpedo 19

(*Continued from page* 50)

speed slightly less than 10,000 rpm and was ideal for a break-in run. Initial starting was very easy and the engine showed no sign of being stiff or overheating.

Several trials were made to determine the easiest starting method. Best results were obtained with a very small prime in the exhaust port and with little or no fuel in the carburetor. Putting a large prime in a high-compression engine will sometimes result in a quick start, but more often causes a stubborn kick like a mule. In such cases, sometimes twenty or thirty flips are required to work off the excess fuel before the engine will turn over without a violent kick-back. A small prime

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### ENGINES

Burgess M-5 Radial, near new condition, all accessories. $49.95 P.P., Box 885, Santa Monica, California.

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Wanted: 1000 used motors in part exchange for new motors and supplies. Send self-addressed stamped envelope for full details. East Side Models, 432 Dewey St., Sandusky, Ohio.

### ORGANIZATIONS

Civil Air Patrol Memberships Open. If you're 15 or older you are eligible to join the C.A.P., the civilian auxiliary of the United States Air Force. Members under 18 are C.A.P. Cadets; those over 18 are Senior Members. Send letter to C.A.P., c/o Air Trails, 304 E. 45th St., New York 17, N. Y., stating that you're interested in joining. This letter will be sent to the Patrol unit nearest you.

Have you soloed? Join the exclusive Solo Club Write Air Trails for details.

Be an Air Adventurer—see pages 29 and 30 this issue. Help make America first in the air.

is the most dependable method.

The engine was tested at speeds varying from 7,500 rpm up to 17,500 rpm with good results throughout the full range. Best power is produced between 11,000 rpm and 14,000 rpm. Engine operation at 17,500 rpm is very steady, but sustained running at this speed is not recommended.

Several fuel mixtures were tested for comparative results. Switching from colder fuels recommended for large engines to the hotter Half-A blends produced no increase in speeds and made the engine harder to start. The high compression causes the engine to fire too soon on hot fuel mixtures and kick back rather than start.

This engine would be well adapted to the model fans who like to mix their own fuel. Good results would be obtained with a mixture of water-free alcohol, castor oil and a gum solvent such as Amyl Acetate, with little or no nitrated material added. This note is for the attention of service men and the other distant modelers who have trouble getting nitrated glow fuel.

### Parts Illustrated

1. Crankcase, die-cast aluminum, 1.59 oz. 2. Glow plug, steel body, ¼-32 thread, .10 oz. 3. Glow plug washer, copper, .036" thick, .01 oz. 4. Cylinder head, die-cast aluminum, 1¼" dia., .36 oz. 5. Cylinder and gasket, steel, .641" dia. x 11/16", 1.19 oz. 6. Needle valve assembly, brass, .068" dia. needle, .25 oz. 7. Piston, Meehanite, .640" dia. x 11/16" long, .27 oz. 8. Cylinder head bolts, steel, 4-40 NC, .17 oz. 9. Crankshaft, steel, .375" dia. shaft, .217" dia. crankpin, 1.02 oz.; drive washer, steel, 31/32" dia., .31 oz.; propeller washer, steel, ⅞" dia., .19 oz.; propeller nut, steel, ¼-28 N.F., .09 oz. 10. Connecting rod, aluminum alloy, 1¼" long, .08 oz. 11. Wrist pin, steel-aluminum pads, .155, .04 oz. 12. Back cover bolts, steel, 4-40 NC, .07 oz. 13. Back cover plate and gasket, die-cast aluminum, .22 oz.

Total weight: 5.96 oz.

### Engine Data

*Performance.* Weight: 5.96 oz. Propellers—10/6 wood: 7500 rpm; 9/6 wood: 9,800 rpm; 8/8 wood: 11,600 rpm; 7/6 plastic impregnated wood: 17,500 rpm. Fuel: cold mixtures containing a low or medium percentage of nitrates. Fuel level test: 7½" at 11,600 rpm.

*Design Data.* Displacement: .199 cu. in. Class: A. Stroke: .620 in. Bore: .624 in. Stroke bore ratio: .993. Compression ratio head: 8.3. Compression ratio base: 1.35. Port area intake: .049 sq. in.; bypass: .0785 sq. in.; exhaust: .118 sq. in. Ignition: Torpedo glow plug.

*Construction Features.* Bearings—crankshaft: bronze bushing; crankpin: aluminum alloy; wrist pin: aluminum alloy. Extra large crank shaft. Intake passage and all ports large for a .19 engine.

# Dope Can

(*Continued from page* 34)

prices down for everybody. Nothing startling about that, but many of us have seen engine and kit prices come down sharply as more casual flyers came into the picture.

But the contribution of the sport flyer is more than that, really. By virtue of the fact that he participates for the sheer enjoyment of the hobby makes him the best salesman in the world for model aviation. Our experience has been that the back-yard, school-ground, baseball-diamond type of flyer is more ready to talk to the general public about his hobby than the serious-minded contest-going experimenter. By a readiness to pass on his findings to any casual bystander, the sport flyer has probably brought more new recruits into modeling than all the contests ever held.

So a springtime salute to the unsung hero of model aviation, the fellow who builds and flies models not for glory or award but for fun and relaxation.

**Big News of Big Meets.** Even those of us who don't participate can't help getting excited over the two big contests each year. We refer, of course, to the National Championship Meet and the Plymouth International Contest. The Nats are scheduled for the second year in a row at Dallas Naval Air Station. Time will be July 23 through July 29. The National Exchange Club and the Exchange Clubs of Dallas will sponsor the affair with the cooperation of the Navy and the Academy of Model Aeronautics. Send 10c. to A. M. A. at 1025 Conn. Ave., N. W., Washington 6, D. C. for entry blank.

Plymouth's 5th annual meet will be held in Detroit exactly one month later, August 22. The competition runs through the 27th. Ninety-six trophies and $4,725 in Savings Bonds will be awarded. Details from your Plymouth dealer.

**Contest Time.** Here's a round-up of some coming meets. On May 20 the Shelby, Ohio, *Balsa Buzzards* will put on a competition open to modelers from Northern Ohio. Howard L. "Robbie" Robinson (c/o Shelby Pure Milk Co.) will direct. The Bucks County, Pa., Federation of Model Airplane Clubs will hold its second annual all-team race meet on the Quakertown Kiwanis Aero Jockeys flying field Sunday, May 27. Registration and time trials from 10 A. M. to noon; races all afternoon. Restricted to entrants from Penna., N. Y., N. J., Maryland and Delaware. William P. Hartzell, 335 Juniper St., Quakertown, Pa., is the man in charge.

Minneapolis and St. Paul hobby dealers will run off another big Talent Scout contest on June 3. Somewhat different from the usual thing in competition; we suggest you get details

# AIR TRAILS Hobby Shop Directory

**Model Builders! Here's a listing of the nation's leading hobby shops. You'll want to file it away—and when you're in the neighborhood, drop in and browse around. They're expecting you.**

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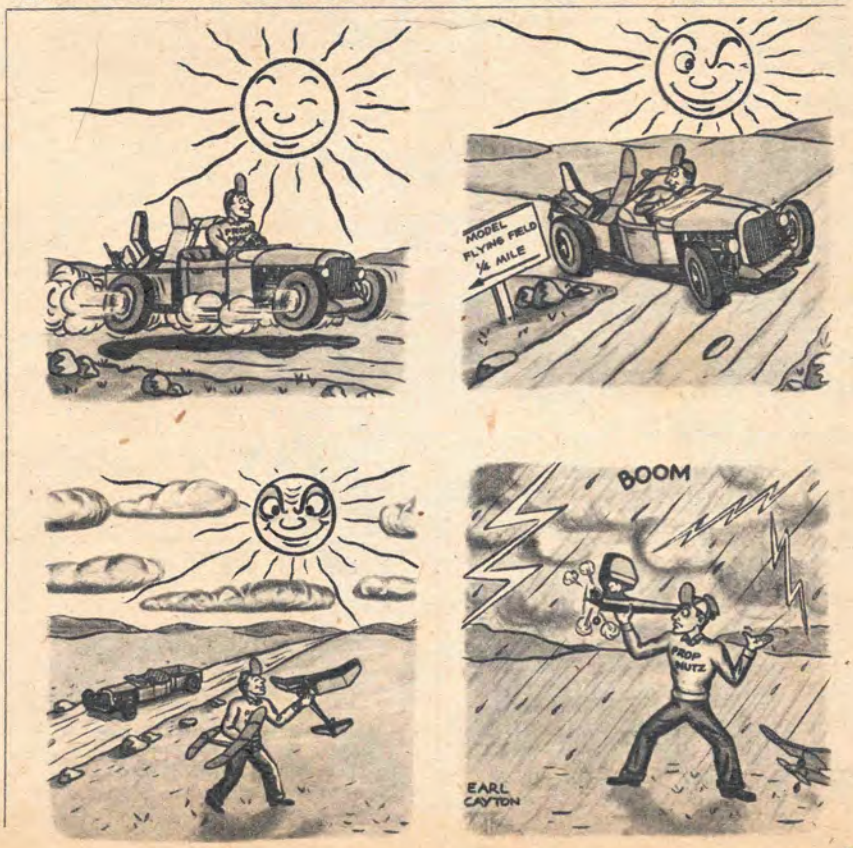
from Paul J. Ring, 2816 E. 42nd St., Minneapolis 6, if you live in that area. The big "Mirror" meet goes on at Grumman Field, Bethpage, L. I. on June 3. If you've not already entered, it's too late; but in such case we recommend you turn out to spectate. On June 10 the Wooster, Ohio, MC runs off its control line flying circus. Bill Altmann of the Long Island *Gas Monkeys* announces that the 4th annual invitational free flight meet has been set for somewhere on Long Island on June 17. Details can be secured from director Ernest V. Roff, 56 Stuart Ave., Malverne, N. Y.

Big things are brewing down Georgia way. The thirteenth annual Southeastern model airplane show is scheduled at Fulton County Airport on June 23 and 24. Sponsor will be the Exchange Club of Atlanta and the Georgia Congress of Model Airplane Clubs, Fred Turner will direct events for just about every outdoor event in the book: hand-launched and towline gliders, rubber models, free flight, U-control flying scale, stunt and speed. Also team racing, jet and radio control. This regional meet takes on the atmosphere of a Nationals. We're advised that all communications should be addressed to Bob Elliot, publicity chairman, GCMAC, Box 5078, Atlanta 2, Ga.

Winston-Salem, N. C. will be the scene of two battles, U-control on June 17 and free flight on July 8, both affairs sponsored by Plymouth dealers. *Skywriters* MAC will conduct and data can be had from E. D. Aldridge, 853 Watson Avenue, W-S. On June 24 the Schenectady, N. Y. *Aeroneers* run off their Class AA annual meet. Get ahold of George Fowler, 93 East Side Drive, Balston Lake. He has all the dope. Another meet at Shelby, Ohio, on July 1. This is a Class AA competition; Robbie has the info.

The *Lake Erie Gas Model Club* will conduct its "fourth annual Half-A" contest July 15. Gee, fellers, we didn't know that Half-A was that old. It'll be at Cleveland, Ohio; John W. Grega, 10422 Gay Ave., says he has applications.

As a departure from the usual policy of running off all classes of free flight gas, rubber and towline models in the annual *Screamin' Demons* summer free flight contest, the Long Island club is confining itself to Half-A this year. Main reason is the rapidly diminishing size of available flying sites. Popularity of baby engines, low cost of the small jobs and the conservation angle also enter into the decision according to William K. Johnke, contest director for



# ADVERTISERS' INDEX

## June, 1951



While every precaution is taken to insure accuracy, we cannot guarantee against the possibility of an occasional change or omission in the preparation of this June, 1951 index.

the organization. Its headquarters are at 601 Meadowbrook Road, E. Hempstead, N. Y. The date of the meet, August 19. Place: Hicksville model flying field. Events (all Half-A): free flight, hand-launched or rise-off-ground; rise-off-water; flying scale R.O.G.; PAA-Load and Clipper Cargo.

A triple-A AMA sanctioned battle, the All New England model meet sponsored by the Pawtucket, R. I., Chamber of Commerce will be run off at Pawtucket on Sept. 2 and 3. Arthur C. Bergeron, 55 Ricard St., Seekonk, Mass. is the man with the application blanks. Another Class AAA meet will be the Connecticut State Championships which will be sponsored this year by the New Britain MAC at N.B. Date is Sept. 9. Richard G. Matava or Michael Adajian (take your pick) at 358 Prospect St., Hartford, Conn., can tell you more about the contest.

**Club Picture.** Despite the number of modelers who are leaving for military service, the club picture nationally is generally good. Let's take a run-down of units that have reported in and bring you up to date on their activities.

Current set of officers for the *Screamin' Demons* of Long Island mentioned above are Arthur Portmore, Baldwin, president; James Hamelman, Hempstead, veep; Charles Munder, Williston Park, treasurer; Bruce Lowry, Hempstead, secretary. Some *Demons* have left for service, the remainder are mostly veterans.

A sharp-looking crowd from Rhode Island are the *Flying Fools MAC*. The group has had a lot of publicity in the Woonsocket papers, runs its own mimeographed Foolscap bulletin and turns out for all official flying in nifty T-shirts featuring the club emblem. Ed. Whalley, sec., at P. O. Box 1302, Woonsocket, will tell you where and when the *Flying Fools* meet. He shares tasks with Stan Solecki, also billed as secretary. President is Gus Lottinville. Club members enter all major contests as far south as Norfolk, Va. and will hold their own invitational meet sometime after Labor Day.

Reorganized Roanoke, Va., *Gas Modelers* now have as their president Jimmy Funk. All club correspondence should be addressed to Paul W. Martin, secretary, Route 1, Box 490. Down Dundalk, Md., way the *Dundalk MAC* reports a tremendous amount of interest in U-control biplane flying. Lee Witmyer, club secretary, says the SE5's, Spads, Fokker D-7's, Great Lakes Trainers and Little Stinkers are coming out in droves. Seems the boys started on square-tipped, slightly unbeautiful bipes, took a ribbing from spectators and decided to turn out some really beautiful ships.

Night flying is a feature of the club's activity. Almost every Friday evening before the club meeting, after-dark operations is a regular thing. Pen cells are held onto models with masking tape, or wing lights are built in. Lots of fun, reports Lee. Club members converted a swamp area into a flying site by convincing construction men to dump waste dirt there. It has been leveled to accommodate three flying circles. A soft drink stand which cost $17.53 to erect paid for itself in two months. Apparently each of the 38 members works hard on club projects.

Lee asks for suggestions on keeping dust down on the field. Drain oil from service stations? If you know the answer please drop Mr. Witmyer a line at 2905 B Dunbrin Rd., Baltimore 22, Md.

Here's a new club heard from! *Suburban Aeromodelers*, 710 Dartmouth Ave., Silver Spring, Md. The whole club reads AT. Good. The Bucks County, Pa., Federation of Model Airplane Clubs put on its first annual banquet and made headlines in the local press. Everett N. Angus, ex-president of the

A.M.A. was a featured speaker along with C. C. Powell, a Plymouth district manager.

Here's one group that has been hard hit by the expanding military forces. Remember AT's story on the *Flying Maniacs* of Augusta, Maine? Howard E. Smith, formerly publicity director for the club's newspaper, is back in the Air Force at Wright-Patterson Air Force Base in Ohio. He tells us that all the older members went in uniform or off to college, so with no older hands to guide club affairs the *Maniacs* folded. Since the same thing happened to many other Maine clubs, the Maine Council of MAC has been discontinued, too. Sorry to see activity cut off, fellows, but we're darn glad to see so many of the Maine boys on duty with the Air Force.

Maine may be having tough going, but it looks as if Rhode Island is one of the busiest states for modelplane activity. Checking in with us is a comparatively new group, the *Aero Busters*. Ed King from Riverside is president; Michael Tierney, same town, is vice president; while John E. Taber, 44 Halsey St., Providence, is the chap to contact for membership information. Apparently it's a pretty good all-around group as far as modeling interest is concerned. John's building a 9 ft. radio-control Taylorcraft; others concentrate on stunt and scale U-control and free flight. The *Aero Busters* would like to welcome in some speed merchants.

Small but extremely active are the *Campbellton Skyhoppers* of Campbellton, N. B., Canada. Marcel Lavoie, 32 Mill St., reports that 9 members are engaged in building a series of models starting with a Junior R.O.G. as a club project. Although prospective members are few, Marcel expects a dozen active flyers within a short time. What these lads lack in numbers they sure make up in interest—Marcel sent along numerous entries for the Sketchbook department.

"This club," writes William L. Horton of the *Garden State Aeronauts*, "has used every film source you have so far mentioned in your column and found them all worth recommending. The P-47 series from Republic Aviation, a very good film on jet development from British Aviation Services, and many from the CAA in particular. The CAA's 'Northrop Flying Wing' in color is as good a bit of educational entertainment as can be had. A tip to club secretaries—plan your programs as far in advance as possible in order to get the films you want on the dates you want them. This club makes its film nights open to all. We get our regular members and invite the wives which helps dispel the model widow's gripe and use the film meetings as a chance to sell the hobby to visitors. Another tip—local camera shops usually know who has projectors."

Want to contact a club in Cuba? If you do here's the name of one: Club Aeromodelistad Matanzas, Independencia 174, Matanzas, Cuba. Pedro Ramos Garcia is the group reporter. He reports that a National contest was held in March, that the club is recognized by the sports authorities and that one of the club's major projects is a 6-foot Piper Cub which "floats" around at 50 mph.

From Wills Hall, U.V.M., Burlington, Vt., Leonard Korzun writes on behalf of the *Green Mountain Modeleers*. Organized for 4 years, the club has slipped some from its peak of 36 members and an A.M.A. charter. Mostly from older members going in the service or moving on to out-of-town jobs. The GMM is seeking more members, the younger devotee being especially invited to contact Len. Practically all modeling in Burlington is control line except for one lone rubber modeler. The club has been dabbling in team racing using modified *Junior 19's* on 60 foot lines.

Here's a new club, the *Hawks* of Staatsburg, N. Y. David Junceau is head man, Lawrence Kwant is secretary with Richard Nielson assisting him. To join, contact Junceau, North Cross Road. Scott Air Force Base, Ill., has organized a model club. S/Sgt.

"I can't understand it—Igorsky has always been one of our best airplane designers..."

Arthur W. Blake apparently is the one responsible for getting the group underway. A charter has been requested from the A.M.A. More dope from Public Information Office at Scott, Belleville 4000, Ex. 2544. Big merger: out L.A. way the Sky Kings MAC and the Bay Cities Modelers merged and combined activities go on under the Sky King name. Combined membership is well over 50. Jack McMullen is president. Mary L. Murphy, 7921 Kentwood Ave., Los Angeles 45, is corresponding secretary.

**Off His Chest Dept.** Robert G. "Honest Bob" Twells of Charleroi, Pa., admits that "every couple of years I give in to the urge to write Air Trails and give my views toward modeling in general. I have read AT since 1938 (an old Bill Barnes fan, you see). I still enjoy going back through the old issues and looking at the old motor and kit ads. The old Brown Jr., Baby Cyke, James, etc., were the big rages then. I still have the wreckage of my old Comet *Clipper* which was built back then.

"Oh boy, those were the days! My buddies and I used to ride our bicycles 7 miles out to our field carrying all of our free flight equipment which was considerable. We used to come home dead tired but we really had fun."

Well, Honest Bob, what's your beef? Hum, you don't say. Maybe you're right. Why not explain your position to our other readers? You will? Good!

"What's wrong with modeling now?" asks Mr. Twells. Then he takes them one by one. "Free flight—the majority of modelers today are lazy. Poor, sloppy construction is seen at every contest. Low wing loading and high power make almost any design a potential winner. PAA-Load is a step in the right direction if points would be awarded for appearance.

"Rubber—except for lack of interest, there is little wrong with rubber today. The craftsmen win the contests. Phooey to the critics who want to put Half-A engines in the Wakefield.

"Speed—interest in speed has reached a new low. The proof of this is seen in the number of combined-class contests lately. I seriously doubt if a change to a proto-speed event would help. The speed fans want all-out speed, so why spoil their fun? There is no trouble with speed; the interest has just leveled off to the point where it belongs in connection with other phases of modeling.

"Stunt—interest in stunt has reached an all-time high. I believe there are at least as many stunt fans as there are free-flight fans even if this was not proven out by the number of contestants registered at the Nationals. The trouble at contests is the lack of classes. Most of the contests in the Midwest last summer had only one class of stunt, sometimes not even Jr., Sr., or Open breakdowns. I was at one contest last summer in which more than thirty top notch contestants competed for one trophy while a couple of other contestants 'fought it out' for three trophies in Sr. Class C speed.

"Team-racing—this event has yet to reach its peak in popularity. Eventually it should be as popular as free flight and stunt. The only thing that I can see wrong with team-racing is that all motor sizes should be allowed to compete together (using the same one-ounce tank, of course)."

# Carrier Model

(*Continued from page 76*)

### Bill of Materials

*Balsa unless otherwise specified*

8 pcs. 3/32" x 3" x 36", wing skins. 6 pcs. ⅛" x 3" x 36", fuselage sides, formers, wing ribs, spars. 1 pc. ¼" x 3" x 36", backbone, stab mount, elevators. 1 pc. ⅜" x 3" x 36", wing L.E. 2 pcs. ½" x 3" x 36", stab, fuselage nose. 2 pcs. ⅛" x ⅛" x 36", stringers. 22 pcs. ⅛" x ⅜" x 36", fuselage planking. 3 pcs. ¼" x ½" x 36", fuselage crutch. 1 pc. ¾" x ¾" x 10", wing tips. 12" x 12" of ⅛" plywood, mount sides, spar joiners. 2 pcs. ½" x 3" of ¼" plywood, firewall.

36 pcs. 1/16" dia. steel wire, pushrod, tail strut. 24 pcs. ⅛" dia. steel wire, landing gear. 48 pcs. 1/32" dia. steel wire, line leads. 2 pcs. ½" dia. Veco wheels. ⅞" dia. tailwheel. Veco control horn. Fiber bellcrank. 4 Eye or "J" bolt L. G. fasteners. Aluminum cowling. Bubble canopy. Hap the Hot Pilot. Ignition accessories (if used). Primer, clear dope, tissue, colored dope. Red-white Trim-Film decal sheet.

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